THE COLD CANVASS

By B. T. Umor

(Concluded from Page 1, Column 1)

Detroits in Alabama, Illinois, Kansas, Maine, and Oregon. Detroit Lakes is in Minnesota.

Detroit, Ala., has a unique distinction. It had a population of 100 people 40 years ago, and it still had exactly 100 when the last census was made.

* * *

Population Constant

Come to think of it, we've heard of such a town before. According to the story, a traveler stopped there one day and engaged an agreeable colored native in conversation.

"What's the population of this town?" inquired the traveler.

"We allus has just an even hundred," replied the native.

"You mean to say that the population of this town always stays the same?" asked the surprised traveler.

"Yassuh always the same, jes 100."

"But aren't any babies ever born here?"

"Yassuh, they's babies born here all right, but seems like every time that happens, there's somebody leaves town."

* * *

Now, Padded Floors

An announcement about a new air-conditioned apartment house in Chicago states that the living quarters will have "padded floors."

Things are getting so topsy-turvy in this old World of ours that even the wall-butters apparently no longer have a one-track mind.

* * *

Well, It Had a Horn, Didn't It?

A deer-hunting season story now going the rounds concerns a certain hunter from a certain branch office of a certain refrigeration company.

It was a cold day, so after he'd parked his car off the highway he threw a deerskin over the radiator, so it wouldn't freeze. Then he started stalking his prey.

After roaming through the valley for a couple of hours, he sighted the quarry, carefully leveled his gun, and fired five rapid shots at it as it stood motionless. Advancing cautiously to bag and claim his booty, he found his car with five bullet holes in the radiator.

* * *

Calling All Dogs

They've found another new use for those radiophone intercommunication sets. A dog fancier installed a bedside-to-kennel system, and it's more than half for fun if one might what. I enabled the owner to scare a valuable English setter from straying or to quell hostility of a bone wedged in her throat.

Another, and just as practical, use for the radiophone system is the owner's ability to quiet the dogs from the bedside when they begin to bark up at night.

One can almost imagine the dog fancier, aroused from a deep, dreamless sleep by the baying of the hounds in the backyard or by the phone calls of nettled neighbors, switching on the communication system as follows:

"Attention, dogs! Your barking is disturbing the neighbors. Your barking is disturbing the neighbors. Quiet! Go back to sleep. Quiet! Go back to sleep. That is all."

* * *

A Dentist's Advice To His Son

Advice of a modern refrigeration dealer to his son:

"My son, never speak unkindly of prospectives; never knock them because you hate them the same as to make extra income; insure routine calls collected; less lay-backs; many sticky drinks and other similar unpleasant things in life inevitable reason to make Lots. Why to make them only to lose."

Market Data Needed To Avoid Duplication In Parts Production

(Concluded from Page 1, Column 4)

real value to the parts manufacturer in controlling inventories, in setting up production schedules, and in evaluating the importance of various types of products.

We in our own company have very accurate statistics on Alco controls and follow closely the trends in type of equipment used, sizes, connections, refrigerants, application, etc. This, however, is not enough for as one company we are only a small part of the whole industry and if we should happen to have a predominance of one type of customer our own sales statistics would not represent a true cross section of the industry.

The lack of industry sales statistics leads to situations such as one which recently developed in our own business. Several years ago we were requested to manufacture for one concern a particular type of large capacity control valve. We were able to do so by utilizing a certain percentage of parts used in other standard equipment.

Since this device was made for one good customer quite regularly it was eventually placed in our line as standard equipment. Being somewhat special and of large capacity it carried a fairly high list price.

IGNORANCE CAUSES WASTE

Soon our competitors had designed and were listing a similar device (there was nothing particularly original about ours, it was just the large size edition of what several companies were making).

Now all of us are listing such a device in our catalogs—every one of us has the tool and die costs, the inventory, etc., and yet in a year the industry can only use about 200 of these large size controls.

Accurate statistics could have saved some of these companies real money for the potential volume just isn't there to permit everyone to sell this device in large enough quantities to pay for their dies and tools and still make a profit.

I do not mean to imply that statistics will discourage competition for in most cases it will obviously encourage competition, which we all realize is necessary to the growth of industry. Accurate statistics, however, can prevent the waste of developing something the industry does not need very often and that time and money could be spent in developing at possible lower cost something really needed.

PRODUCT REQUIREMENTS

The second type of information which would be of real benefit to both the parts industry and the parent industry is an accurate indication of new product requirements. A close cooperation between the air-conditioning and refrigeration industry and the parts and accessory industry in the development of new products would be a real contribution to progress.

It is true that new product development is the parts manufacturers problem and it is his job to determine what the field needs. Yet the growth of the whole refrigeration industry is in direction proportion to the speed and thoroughness of the parts manufacturers development program. We have attacked the new product problem from several angles. Through field work, questionnaires to manufacturers, and actual test work we endeavor to find out what is needed.

We have in the past two years tested over 250 standard evaporators in our engineering and research department to ascertain the best type of refrigerant control equipment. Manufacturers of all types of air-conditioning units, shower units, milk coolers, display cases, beverage coolers etc. have sent in their standard units for our test. After exhaustive tests of capacity, distribution, control, etc. we return the unit equipped with the best control device properly applied. We also submit to the manufacturer a very complete engineering report of these tests. This we do at no charge whatsoever to the evaporator manufacturer.

This type of research has resulted in many new applications and control developments—the latest example of this is our multi-outlet expansion valve which gives the industry better distribution at lower cost.

Reliable indications of what accessories and parts are most needed will ultimately benefit everyone. Progress in an industry is too frequently retarded by the lack of the right accessories at the right price.

My emphasis on the importance of accessories to the refrigeration industry may seem a little like the tail wagging the dog and yet they may be likened unto the nail that lost the kingdom. You all remember that old story, "For want of a nail the shoe was lost, for want of the shoe, the horse was lost, etc. up through the kingdom itself."

AIR CONDITIONING & REFRIGERATION NEWS recently reprinted an old interview with the late A. H. Goss on the growth of the household refrigerator. Mr. Goss related how the development of a thermostat to provide automatic operation was their main problem. In 1914 after an expenditure of about $150,000 a satisfactory diaphragm-type thermostat was developed and the household refrigerator became a marketable item.

IN AIR CONDITIONERS

Today we have somewhat the same problem with the small unit air conditioners. We all realize that before the average individual will buy an air-conditioning unit for his home or his office the price must be right. This means that each part must carry as low a cost as possible.

One manufacturer has determined that the refrigerant control valve alone represents one fourteenth of all outside purchases. We are now developing a new low price refrigerant control for this specific purpose. Several manufacturers have been most cooperative in giving us their exact requirements so that we are able to design for very specific application with a resulting saving in cost. It is this type of cooperation that makes for direct progress in an industry.

CALLS FOR HELP

I have briefly outlined our more important market data problems—their solutions lie in several directions. The Refrigeration Parts and Accessory Manufacturers have organized a trade association and it is hoped that eventually this organization will be able to supply us with accurate sales statistics.

The market research data on new products must of course come from many source. The greatest burden here rests on the parts manufacturers themselves but they can use a great deal of assistance. They will welcome more technical papers like the one on "Thermal Valve Requirements" read at a recent A.S.R.E. meeting by John Bargeld of the York Ice Machinery Corp.

Manufacturers can help by clearly indicating their needs on the parts manufacturers questionnaires and in their normal dealings with the parts manufacturers engineers.

A story was told on a recent radio program about two members of the London counterpart to our Union Club. These two regular members were seated comfortably as usual and after several hours had passed Kemball-Cook said to his neighbor:

"Bothersington, old chap!"

"Umph!" replied Bothersington.

"Sorry to learn, old man, you buried your wife last week."

Without moving Bothersington replied,

"Had to—dead you know."

Often we are apt to devote too much time and money to products which are no longer of real importance. Reliable statistics can like Bothersington tell us "Dead you know" so that we can divert our efforts in other directions more profitable to the industry.

Air-Conditioning Group Gets Cincinnati Support

DETROIT—Interest in the organization meeting of the proposed air conditioning dealers and contractors association, scheduled for Jan. 17 1939 at the Stevens hotel, Chicago during the All-Industry Refrigeration and Air Conditioning Exposition continues to rise in many sections of the country, declares J. H. Keller president of the Air Conditioning Association of Michigan.

The Michigan group recently received a letter from Carl Bunz president, the Air Conditioning Division, Cincinnati Electrical Association, Cincinnati, which reads in part:

"I imagine several of our members will be up to the Chicago meeting in January. . . I am sure all the group in this business appreciate you fellows taking the lead and getting something worked out.

"I feel sure that our members believe that air-conditioning dealers ought to control this industry as we are the people who sell the product."

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Refrigeration Cost
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A-P Thermostatic Expansion Valves and Solenoids now provide typical A-P Control efficiency and sensitivity and dependability in EVERY size and type of Refrigeration and Air Conditioning job — from ¼ ton and up. Use A-P Valves on your next job — you'll find more profit from a cut in service calls and expense.

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Air Conditioning & Refrigeration News

The Newspaper of the Industry

Written to Be Read on Arrival

Vol. 25, No. 16, Serial No. 506
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THE COLD CANVASS

By B. T. Usher

A 'Stocking' Model?

Just doesn't seem like a real refrigeration Christmas this year. Not one household refrigerator advertisement in a holiday season issue of that popular Tuesday weekly magazine. Don't tell us they have run out of surplused cutting machines for the Gandhiesque Christmas morning unveiling scene. Or maybe with the trend toward miniature models in almost everything, the enterprising advertising men are waiting for the designers to turn out a midget box so they can picture it peeking out of Mary Hamilton's stocking.

* * *

Wages-and-Hour Law Brings Santa In Shifts

Speaking of old orders changing, word comes that St. Nick has taken notice to the wages and hours law. R. H. Macy's New York store says there is fewer than four whiskered jolly confessors working on half-hour shifts. Must be a little disconcerting to the uninitiated urchins to see a substitute "Santy" warming up on the sidelines.

But these big league Kris Kringles have their troubles. One grubby tyke with a third avenue accent swaggered up and asked the old gentleman for a million dollars. "How nutty," same uncle Santa. "A million dollars would give you an awful headache."

"Fat," scoffed the kid. "But I could buy plenty of aspirin."

* * *

'Katy Bar the Door'

Conventioneers at the recent A.S.R.E. meeting in New York City and the small army who will journey en masse to Chicago for the All-Industry Exhibition should peruse the entertaining book by Frank Case, New York hotel manager. It should especially interest those free souls who have their bubbling spirits dimmed by a fun-cramping hotel management.

To quote the unusual Mr. Case: "We should not expect extraordinary people to behave like commonplace folk. . . . I think that gifted people should not only be tolerated but should be encouraged in their strange and temperamental antics."

While there are no professional histrionic or arty powerhouses (that we know of) in the refrigerating industry, we do know that the industry is packed with extraordinary and strangely gifted people.

All the gayer dogs have to do now is to send their Chicago hotel manager a copy of Mr. Case's book on the care and treatment of innkeepers and then prepare to move in and activate the roof without fear of more than a slight managerial frown, or a "Mr. Tak, boys, let's not take the elevator out of the building tonight."

Detroit Dealers Seek State-Wide Group

DETROIT—Appliance dealers of Metropolitan Detroit, whose unsuccessful attempts to establish and maintain some sort of retail trade organization have been many and varied, are making another stab at it, this time as one section of a state-wide group known as the Michigan Retail Appliance Association.

Heading actual management of the new body as business secretary is N. D. Jordan, managing director of Michigan Merchants Credit Association, Inc. and also longtime executive secretary of Michigan Retail

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Warm Air Group Widens Scope of 'Publicity' Drive

Supporters of Activity Are Revealed At Annual Meeting

CINCINNATI—First public announcement of the names of the companies supporting the new sales development and publicity campaign of the National Warm Air Heating & Air Conditioning Association was made at the silver anniversary convention of the association Dec. 12, 13 and 14 here.

After listening to reports by H. T. Richardson, chairman of the publicity committee, and Allan P. Jones of Jones & Dorr, the agency managing the campaign, the more than 1,000 registrants added their names to the list of campaign contributors during the convention.

Those attending the convention heard a prediction that cooling systems for private homes will be brought within reach of many home owners by mass production methods.

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Servel Net Profit Off, But Upturn Is Noted

EVANSVILLE, Ind.—Servel, Inc. reports a net profit of $1,372,669 for the fiscal year ended Oct. 31, 1938, after interest and federal taxes, equal after payment of dividend on preferred stock, to 85 cents per share on the 1,721,628 shares of common stock outstanding.

This compares with a net profit of $4,868,802 for the previous fiscal year, equal after payment of preferred stock dividends, to $2.59 per share on the common stock.

Operations for the fourth quarter of the fiscal year resulted in a net profit of $340,850 as compared with $215,628 for the fourth quarter of the 1937 fiscal year.

Dealers Put Teeth In Attack Against Group Discounts

CHICAGO—That the fight against group "discount" buying of electrical appliances by and for employees of industrial concerns is being pushed more determinedly this year than ever is the point underlined by the activities of retailers' associations here and in Milwaukee.

Working through a Retail Furniture Dealers' Association, Chicago appliance dealers have gone a step further than Milwaukee retailers and are urging that dealers support all distributors who sell direct.

To show retailers who the real offenders are, the Chicago group

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'Package' Line Shown By Westinghouse

MANSFIELD, Ohio—A complete line of packaged commercial refrigeration equipment has been announced by Westinghouse Electric & Mfg. Co. here.

The new line, known as "Designed Cold as a package," includes display cases for grocery stores, markets and delicatessens; reach-in coolers for grocery stores, markets and larger institutions; bottled beverage coolers; milk coolers; and milk refrigerators for commercial and industrial establishments.

Most display cases, delicatessen cases and reach-in coolers embody air-conditioning principles of accurate control of temperature and humidity, known as the "Flow-Cool System." This principle utilizes a gentle movement of air with humidity control in connection with refrigeration.

Field tests have shown savings in operating costs, including an average of 6.5% per day reduction of meat shrinkage, say Westinghouse engineers.

The "Flow-Cool" air-conditioning system is designed to keep meat salable longer by reducing spoilage

Concluded on Page 4, Column 1

Numerous Group Meetings With Big Exhibition & Banquet Focus All Eyes on Chicago In January

Many Organizations Will Convene at Stevens Jan. 16-19

CHICAGO—Indicative of the wide range of organizations whose members will visit the All-Industry Refrigeration and Air Conditioning Exhibition while in Chicago next month is the preliminary list of meeting room reservations that have been made with the Stevens hotel. The exhibition is being held in the Exhibition Hall of the Stevens, Jan. 16-19, 1939.

In thanking the reservations now definitely booked, M. W. Knight, sales manager of Frostilne of America, Inc., and chairman of the exhibition committee, reports that the hotel already has assigned assembly rooms to the following organizations for meetings as herein indicated:

Sunday, Jan. 15

Board of Directors, National Refrigeration Supply Jobbers Association.

Resolutions Committee, National Refrigeration Supply Jobbers Association.

Monday, Jan. 16

Membership meeting—American Society of Refrigerating Engineers (Midwest).

Membership meeting, National Refrigeration Supply Jobbers.

All-Industry Banquet—Open to all members of the trade in attendance at the show.

Tuesday, Jan. 17

Membership meeting—Air Conditioning Dealers and Contractors.

Membership meeting—National Refrigeration Supply Jobbers Association.

Joint membership luncheon—Parts Manufacturers and Jobbers.

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'Miniature Conventions' To Present Leonard's 1939 Products, Plans

DETROIT—Products and sales plans of Leonard division of Nash-Kelvinator Corp. will be shown to distributors at a series of two-day "miniature conventions" to be held in the Book-Cadillac hotel here starting Jan. 6 announces Ray Legg, general sales manager.

As complete in their coverage as the larger more elaborate conventions which refrigeration and automobile companies have been accustomed to stage, the Leonard "miniature conventions" will bring together distributors in groups of 12 or 20. Program for each meeting will be identical, and will be built around introduction of new models and presentation of new sales plans.

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2 Utilities Drop Free Range Installations

PHILADELPHIA—Effective Dec. 1, Philadelphia Electric Co. and Southern Pennsylvania Power Co. are discontinuing the free installation of electric ranges and electric water heaters, it was announced last week.

The utilities will contribute a maximum of $30 toward the installation cost of an electric range and $25 toward the cost of installing an electric water heater, provided they are listed as approved appliances and are installed on company lines.

Present policy of financing dealers' deferred payment sales will be modified to cover a maximum of 60 months on ranges and water heaters instead of 36 months as at present.

Alter To Concentrate On Parts Business

CHICAGO—The Harry Alter Co. is discontinuing the handling of all the major appliance lines which it has been distributing, and in the future will concentrate its efforts on the distribution of refrigeration parts, supplies, tools and equipment, announces Irving Alter, merchandise manager.

Arthur Alter, formerly head of the company's appliance division, will take over the sales management of parts and supplies. Irving Alter will continue as merchandise manager.

Max Geisler, formerly sales promotion manager in the appliance divi-

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Godfrey Heads Kelvinator Direct Sales In Chicago

DETROIT—C. K. "Bill" Godfrey has been named manager of the national direct sales division in the Chicago area for the Kelvinator division of Nash-Kelvinator Corp., it has been announced by R. J. Behen, general manager of the direct sales division.

In the new position Mr. Godfrey will contact ice cream manufacturers and other direct buyers in Illinois, Wisconsin, Iowa, and parts of Michigan and Indiana.

Although in his early thirties, Mr. Godfrey is a veteran of the refrigeration industry and is widely known throughout the trade. He has been with Kelvinator for the past eight years in many capacities in both the household and commercial refrigeration divisions.

Fixin' To Make It a 'Sure Thing'

"Attempted Bribery" is the caption suggested for this bit of Christmas art by its creator, Frank C. Lyons, director of Frigidaire public relations, and the little lady may have something in her scheme at that, even if Santa turns out to be her daddy in red pants and a false beard.

Profitable Sales Ideas

Economy, Cleanliness and Automatic Features of Water Heater Appeal To Barbers, Salesman Believes

KAMIAH, Idaho—Barber shops and other personal service establishments are natural prospects for electric hot water heaters, in the opinion of Albert Gruber, of Washington Water Power Co. here, an October prize winner in Modern Kitchen Bureau's monthly contest for the best letters on "How I Sell Electric Water Heaters."

In selling water heaters, the job of the salesman is to sell service, rather than equipment, Mr. Gruber points out, and business places such as barber shops understand service, because they, likewise, have service to sell.

"Many shops here in the west are using fuel-burning water heating equipment, which is usually a separate heating device, such as a 'monkey-stove' or a small water boiler," he says. "Thus they are handicapped with non-automatic equipment, unclean equipment, and equipment that is expensive and troublesome to operate.

BOTHER OF FIRING

"I ask the barber if he ever had to stop his work on a customer, in the middle of a shave or a haircut, and rush to a rear room or basement and replenish a fuel fire, then return and prepare his hands and clothes before he could again work on his customer.

"I then tell him about the automatic service he is sure to get from our electric heaters, and he isn't hard to convince that this service has value, even to the service he gives his customers.

"I ask him if he realizes that, while he is waiting for customers, his old equipment is consuming fuel, which results in a needless expense besides the unhandiness of often having water too hot for satisfactory use when the customer comes in.

AUTOMATIC TANKS

"I explain how our automatic tanks operate with temperatures controlled to give water of proper temperature at all times, and they only draw electrical energy in quantities as needed to maintain this proper temperature. There is no waiting at any time, day or night, for water to heat. The hot water supply can be forgotten, and there are no grimy hands and clothes required in the process of producing it.

"The prospect usually has cost figures for the fuel used for water heating, if only for a few months during the summer months when no other heating equipment is required in his shop.

"And since I have cost figures for our metered electric service taken from our monthly billing records for installations exactly like his service requirements, then it isn't a difficult problem for me to show him a saving in cost which favors electrical service. I can then show him that this saving is just as real, and as much, during other seasons of the year, when his water heating is obtained in conjunction with other heating processes.

"Incidentally, these cost figures give me valuable data and a good talking point to use with my other customers who are partly convinced that hot water obtained from furnace or stove coils is free hot water; a fallacy that is always hard to disprove.

"I tell the barber prospect about our 30-day unconditional free trial offer, and free installation, which in most cases gives him the final proof that I am sure of the merits of our service. Of the many who have accepted this offer, **I still have my first installation to remove.**"

'Mystery Shopper' and Special Prizes Up Sales of Lamps

PHILADELPHIA—Bolstered by a "Mystery Shopper" contest and special prizes for distributor salesmen, the October lamp campaign sponsored by Electrical Association of Philadelphia with the cooperation of manufacturers produced a sales total of 1,608,399 lamps with a retail value of $261,497, reports George R. Conover, the association's managing director.

Analysis of the month's business shows that 70% of the lamp sales were made to domestic customers, and 30% to commercial establishments.

Aim of the "Mystery Shopper" contest was to encourage dealers to go after lamp sales. Shoppers called on all dealers registered in the contest, and, if asked to buy lamps, awarded the dealer $1. Analysis of calls made revealed that 12% of the dealers asked "Mystery Shoppers" to buy.

A total of 1,279 retail lamp agents registered as active participants in the campaign, and 314 dealers reported regularly. Fifty-seven dealers received awards for their sales work.

Young Salesman Sells From Hospital Bed

CLEVELAND — The old-fashioned salesman carried a pack on his back, but for 18 months Edward J. Wintering, Jr. has practically carried his bed, and from his "office" in the Lowman Pavilion of Cleveland Hospital has been selling radios and appliances to his fellow-patients as he wins his way back to health.

Son of the owner of the Edward J. Wintering Co., one of General Electric's best Cleveland appliance dealers, young Wintering has sold nine G-E radios on the floor where he is located. He also sold a washer and a refrigerator to another prospect-patient.

And he keeps his father supplied with prospects who are so enthusiastic that they need only a line on which to sign their name.

Twenty-one years old last June, Wintering Jr. while attending school had helped his father in the store, studying product literature and following up leads. So adept was he, according to his father, that most of the names he turned over were easily sold.

He weighed only 80 lbs. when he was admitted to the hospital a year and a half ago. Now he weighs 110, and is allowed to be up a few hours each day. When these occasions arrive, he either visits other patients, or invites them in.

Then he demonstrates how the radio operates without interference from X-ray machines and other electrical equipment used in the hospital. "I show them how I can get dozens of stations—and the radios sell themselves," he says.

His father makes a practice of bringing all new sales literature to the hospital, and on one occasion young Mr. Wintering was allowed a short visit to the warehouse to see new radio models. He wears a wrist watch, given originally to his father as a G-E salesman's prize.

"He really won it. He deserves it more than I did," says the proud parent.

So young Mohammed Wintering lies in Cleveland Hospital, plotting new sales adventures against the curve of his returning strength, and whistling to the mountain to come a little closer and hear his story.

Toy 'Advertising' Train Boosts Appliance and Train Sales

PITTSBURGH — Speeding around the outer edges of a refrigerator-washer window display, a toy electric freight train advertising five kinds of electrical equipment has stimulated sales for the Ochiltree Electric Co. here.

Names of the electrical equipment, which includes ironers, washers, refrigerators, ranges, and electric sinks, are printed on white paper and cover five lighted freight cars from the trucks to the roof. A "house" advertisement is carried on the tender of the train.

Use of the train has proved a mutual benefit for the appliance company and the dealer selling the electric trains. Salesmen report that customers ordering their electrical equipment also ask when they can buy one of the trains.

Analysis Shows What Appliance Farmer Buys First; Dealers Turning To Farms

CHICAGO — Electrical appliance retailers are gradually playing a more important role in rural electrification, Dr. E. A. White, director of the Committee on the Relation of Electricity to Agriculture, declared in his report of the past year's activities, presented at the Committee's annual meeting here recently.

"In areas where 60% and more of the farms have service available," said Dr. White, "electrical service for the farm is rapidly taking on the characteristics of an established business. More attention is being paid to finding out what electrical equipment the farmer wants, and efforts are being focused on selling such equipment.

"In this movement, the dealer is gradually playing a more important role. Like any other development which becomes established, there is less of the spectacular and increasing attention to the hard work which moves equipment from factory to farm. In such areas the use of electricity is increasing. This is a most healthy indication."

PERCENTAGE RISES

For the first half of the current year 89,492 newly electrified farms became potential outlets for electrical appliances, Dr. White said, adding that the percentage of United States farms with occupied dwellings now using electrical service is 20.7. Average kilowatt hours used per farm for the eastern area was 1,014 and for the western area (irrigation) was 5,179, with average costs of 4.72 and 1.80 cents respectively.

Engineering analysis studies, he continued, have revealed that on the basis of amount of energy used, farm household operations, taken as a group, rank only below irrigation in farm electric service.

"It is estimated that approximately 30% of all electricity purchased by farmers is used in the house. There is every prospect for a material increase in this use to improve living conditions.

"Lighting is the most general electrical application in farm homes," he continued, "closely followed by radio, electric iron, and washing machine. It is difficult to determine whether refrigeration or running water ranks next. The only reason these two uses fall below the four others is the greater financial outlay required. Ability to purchase is, in fact, the only competition these six applications have. They are almost universally recognized as desirable.

"The electric range is recognized as desirable, also, but it encounters more competition, However, it is established, and its use will certainly increase. Percentage of farms having electric water heaters and air-conditioning equipment is low, but air conditioning of farm homes by inexpensive equipment, such as 'desert coolers,' is now an established practice in some California valleys. Other equipment, such as cookers, toasters, waffle irons, hair curlers, fans, space heaters, heating pads, percolators, etc., is established in farm use, but percentage of saturation is low.

"Electric refrigeration," Director White declared," is bringing many new and inviting possibilities to agriculture. Most progress has been made with the electric milk cooler, and we can look forward to the time when most Grade A milk will be cooled with electrically-operated equipment. In most cases this is cheaper than ice, and results are uniformly more satisfactory.

APPLE STORAGES

"Apple storage refrigeration on the farm has been successfully used by a sufficient number of fruit growers to remove this development from the field of experimentation. The quick-freezing of fruits and vegetables also offers opportunities for farm use.

"If production were of sufficient volume it would be possible for the individual farmer to install his own freezing equipment, prepare and store his own products, and sell them either at wholesale or retail in seasons when local fresh products are not available. If individual operations are not of sufficient scale to warrant such a venture, it is possible to have one plant serve a number of farmers."

Among other possible rural electrification developments of future importance, Dr. White referred to use of lights for insect control, electric pasteurization of milk, and treatment of fruit juices, ultra-violet light for livestock and poultry production, lights for controlling and stimulating plant growth.

All-Negro Branch Sales Outlets Formed By 2 Dealers Who Find Negro Customers Buy More Under This Setup

CLEVELAND—Experience of two General Electric dealerships, one in the North and the other in the South, indicates that the addition of capable Negro salesmen to retail appliance sales staffs more than pays out in increased business from Negro customers.

Southern experiment with Negro salesmen began a little more than a year ago with Heat & Cold Equipment Co., G-E dealer in Jacksonville, Fla., when John C. Cheeseborough, Jr., graduate of Bethune Cookman College and a salesman of many years' experience, was added to the retail staff.

Negroes gave Mr. Cheeseborough such support that he was a G-E Topper in 1937; the store had to employ two more full-time and two part-time salesmen, and even this was not sufficient to take care of the increased Negro business.

So a few weeks ago, the company opened its colored branch store in the Ritz theater building in Jacksonville. Mr. Cheeseborough, the original salesman, was named manager of the new store, and head of its staff of colored appliance salesmen.

Sales personnel of the new store includes F. Adeniyi Ajaye, a native of Sierra Leone, West Africa, former American field representative for an international banking firm and operator of a brokerage office in Jacksonville; J. Oyekoya Idowu, another West African native, formerly a salesman for the Fuller Brush Co.; Garland Paynther, a Jacksonville resident for 30 years; and a saleswoman, Essie Johnson, graduate of Edward Waters college and Florida A. & M. college.

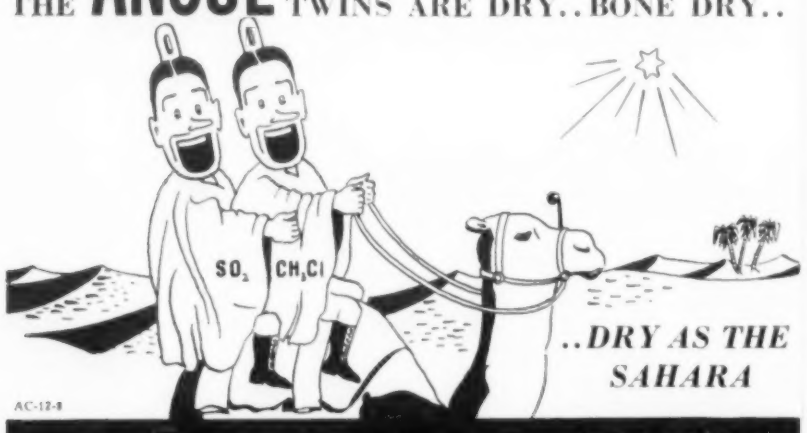
Home economist and secretary of the branch is Zara Cully Brown, well known dramatist and for many years an instructor in dramatic expression, who is vice president of Iota Phi Lambda, national sorority of Negro business women.

Northern appliance dealer who found increased business by putting on a Negro sales staff is Jack Segal, Orange, N. J. merchant, who added 12 colored salesmen, saleswomen, and collectors to his white sales staff. Results so pleased Dealer Segal that he plans to open another store to be run solely by his Negro representatives.

Mr. Segal invites the colored salesmen to all his sales meetings, and gives them an equal chance to share in the prizes and commission money.

The ANSUL *Twins*
and the whole Ansul Company family
wish their many good friends near and far
A Very Merry Christmas!

THE ANSUL TWINS ARE DRY..BONE DRY..



..DRY AS THE SAHARA

AC-12-8

ANSUL TWINS — SULPHUR DIOXIDE — METHYL CHLORIDE

ANSUL CHEMICAL CO., MARINETTE, WISCONSIN

There Is An Ansul Jobber Near You

DEHYDRATED AND SEALED

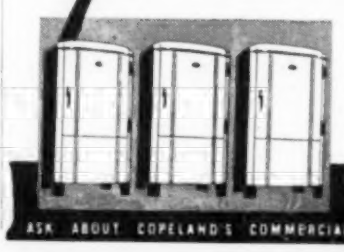
LINDERME

SEAMLESS *Copper* TUBING

LINDERME TUBE COMPANY

CLEVELAND OHIO, U.S.A.

You'll sell more **Copelands**



Because they're built right—super-featured for quick sale, super-powered for performance.

Because they're priced right—giving you the great advantage of low cost, low down payment easier terms.

Write TODAY for facts

Copeland Refrigeration Corporation
Sidney, Ohio

ASK ABOUT COPELAND'S COMMERCIAL REFRIGERATION AND COPELAND WATER COOLERS

They Plan a New and Bigger Program For Leonard

Leonard officials confer over plans for making Leonard's 1939 plans known to the trade. The largest and most vigorous trade paper advertising campaign of its history is being prepared by Leonard, these officials have announced. They are (left to right) Walter Jeffrey, assistant sales manager; Ray Legg, general sales manager; Truman Steinko, advertising and sales promotion manager; and R. R. Ludington, assistant to the sales manager.

Dealers Get Results In Drive on 'Discounts'

(Concluded from Page 1, Column 3)

supplies its members with a printed folder, carrying actual photographs of several of the electrical appliances which were purchased from distributors at unwarranted discounts.

Under the photographs, the various appliance sales in that classification are listed in detail, with the name of the offending distributor, the name of the manufacturer, the established retail price, and the price for which the appliance in question was actually sold.

Totals of these sales are tabulated at the bottom of the list, to show dealers exactly how many dollars they are being deprived of through transactions of this kind made by distributors.

Campaign against group discount buying, conducted for the third successive year by the Wisconsin Radio, Refrigeration & Appliance Association, has attracted the attention of other Wisconsin retail trade groups, reports H. L. Ashworth, executive secretary.

Responsible management of Milwaukee business and industry is beginning to realize, he says, that this direct-buying evil is a menace to the business structure of the community. Other trade associations, notably the Wisconsin Retail Hardware Association, one of the largest and strongest dealer groups in the state, are making plans for a state-wide cooperative drive against group buying in 1939. H. A. Lewis, executive secretary of the hardware association, already has sent letters on this subject to a state-wide list of manufacturers.

As a result of the publicity given its campaign in the past, the Wisconsin Radio, Refrigeration & Appliance Association has had requests from numerous other cities throughout the country for information about its program, Mr. Ashworth says.

If investigation shows that Milwaukee appliance distributors are at the bottom of the group-buying evil in that city, the problem can be dealt with swiftly and efficiently through "collective action" on the part of appliance dealers, Mr. Ashworth points out.

While complaints that some Milwaukee distributors are soliciting this type of business have been received by the association, the opinion of most of those who have studied the situation is that few distributors really want to sell under those conditions, he declares.

Most such sales apparently are made by distributors because they feel it necessary to protect their business standing with those companies or purchasing departments which seek to buy at wholesale for their employes.

If large business and industrial concerns can be educated to quit seeking special buying privileges for groups of their employes, little difficulty will be experienced in getting distributors to abandon such practices, believes Mr. Ashworth.

Leonard Officials Plan New Kind of Meeting To Introduce '39 Line

(Concluded from Page 1, Column 4)

"It is our belief that the usual type of convention often is too big, too unwieldy, without sufficient man-to-man contact between distributing men and factory officials," explained Mr. Legg. "We believe the 'miniature conventions' we are planning will make these meetings far more intimate and worthwhile than if we had our distributor body in Detroit in one large group."

Friday and Saturday, Jan. 6 and 7, will be the dates of the first convention. Second convention will follow on Monday and Tuesday, Jan. 9 and 10; the third on Wednesday and Thursday, Jan. 11 and 12; and the fourth on Friday and Saturday, Jan. 13 and 14.

Vigorous merchandising and advertising plans will be built around Leonard's new products for 1939, Mr. Legg said. More than twice as much trade paper advertising to dealers will be used.

"It is our theory that manufacturers of all kinds should attach more importance to their advertising to dealers, and do more of it," he said. "Only in this way can dealers be kept informed as to organization activities, and inspired to greater efforts. Leonard's plans for 1939 call for closer cooperation than ever with outlets in the field."

Detroit Dealers Joining State Association

(Concluded from Page 1, Column 1)

Furniture Association and Retail Jewelers of Michigan.

E. C. White of Gardner-White Co., and L. R. Richards of Nome Refrigeration & Appliance Co., president and vice president of the old Detroit Appliance Dealers Association, continue in these same positions with the new organization.

A temporary board of directors has been named, but this will be replaced by a permanent board to be elected at an early meeting of the association. Organizational details and a course of action also will be planned at future meetings, Mr. Jordan states.

Headquarters of the appliance association will be maintained at Mr. Jordan's office, 430 Michigan building.

While each of the three retail trade groups under Mr. Jordan's direction will maintain its individual identity and will work by itself on matters pertaining only to its particular trade, all will cooperate to the fullest extent, numerically and financially, in coping with problems concerning the welfare of retailers in general.

Although only the three groups mentioned have so far entered into this retail entente, Mr. Jordan declares that others soon will be added. Purpose of this alliance, he points out, is to enable retailers to play a more potent part in matters, legislative or otherwise, which directly or indirectly affect their well-being.

Alter Co. To Give Up Appliance Lines

(Concluded from Page 1, Column 5)

sion, will handle all of the company's advertising and catalog work. Joe Novotny has been appointed purchasing agent.

Arthur Alter also will be in charge of the management of the company's branch stores and warehouses.

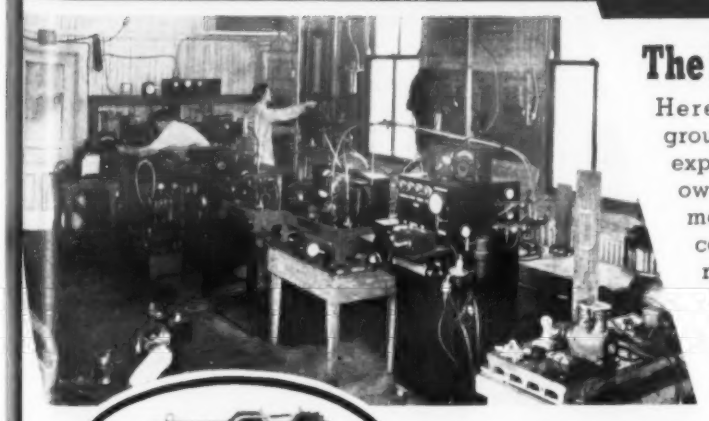
New York City outlet is managed by George Munzer, the Cleveland store by Henry Spivak, and the St. Louis store by B. F. Anthony. The Chicago north side store is under the management of Harry Bernhart, the west side branch is managed by Joe Holub, and the south side branch by Steve Majeski.

No Dividend Likely For Aero Creditors

NEW YORK CITY—There is little likelihood that a dividend will be declared to general creditors of the defunct Aero Products Co., former manufacturer of seals for refrigeration compressors, according to word received from Elmer Levenson, attorney who is winding up the affairs of the firm.

Mr. Levenson reports that he has disposed of his objections to the priority claim of the city of New York, which has been substantially reduced, but that by reason of the pendency of various priority claims, besides administration expenses, it appears unlikely that the general creditors will get a dividend.

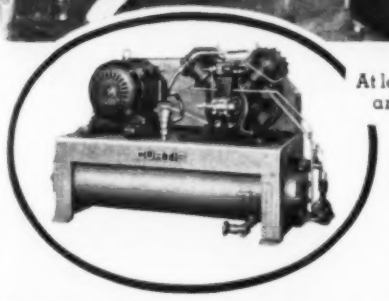
Why Curtis is the Extra Value Line



The Experimental Laboratory

Here are the real Curtis "proving grounds," in the complete testing and experimental laboratory located in its own building—not just a corner of the machine shop. With every facility for constant experimental work, the laboratory is one of the cornerstones of Curtis quality. Day after day, technically trained engineers are seeking ways of making Curtis products even better; of adding extra value to Curtis refrigeration and air conditioning equipment.

Development work in the Curtis experimental laboratory is only one of the reasons for the exceptionally long life, high efficiency and care-free performance of every Curtis Condensing Unit.



At left—The Curtis 15 H.P. Shell and Tube Condensing Unit.

CURTIS REFRIGERATION AIR CONDITIONING AND COMMERCIAL

"Builders of Condensing Units Since 1922"

CURTIS REFRIGERATING MACHINE CO., 1912 Kienlen Ave., St. Louis, Mo.
Division of Curtis Manufacturing Company

Serious & Relaxed Moments as Westinghouse Introduced New Commercial Units

(Left) "That's no lily on my chest, I'm just celebrating the arrival of my new babies," asserts T. J. Newcomb, commercial department manager, as he introduces the new line of packaged commercial refrigeration equipment for many fields. (Center) Two pretty Westinghouse lasses entertain with a duet, accompanied by the Westinghouse orchestra, an employe organization under the direction of R. O. "Flash" Richards, publicity director (the gentleman at the left in the white coat who is concentrating so hard on his job). (Right) B. C. Davison of the commercial refrigeration sales department tells the assembled distributors all about the new beverage cooling units, in which he specializes.

Commercial Refrigeration

Host of Unusual Operating Features Included In New Westinghouse 'Package' Commercial Units

(Concluded from Page 1, Column 3)

and shrinkage. This system creates a minimum of air movement (6 feet per minute), properly directed with controlled moisture content.

Air circulation is provided by a duct system which picks up the air at the top of the case and brings it to the bottom, where, at the air's warmest point, it passes over a water surface. As the air rises, it is cooled in passing through the cooling coils and is diffused upward through the cabinet.

A "Humid-justor" in the bottom of the case provides the circulating air with the required relative humidity. This humidity is determined by an adjustable screw-type drain, which controls the desired area of surface water exposed in the lower air duct. In this way a humidity balance is maintained reducing shrinkage of meats or other products in the case.

Meat display cases ranging in capacity from 6 to 10 feet are available in double-duty packaged, plug-in models. The double-duty cases have a "holiday hold-over" feature, with which meat or other products may be stored in the lower compartment, the circulating system disconnected, and the compartment cooled by natural convection without maintaining upper compartment temperature. Four models of double-duty remote and three models of single-duty remote are available.

Delicatessen display cases also are available in packaged plug-in or remote models. There are five different styles, ranging from 6 to 10 feet. These models are provided with the same "holiday hold-over" feature as the meat display cases.

Front display glass employs three glass plates set in rubber. Ventilation prevents fogging between glasses. Each section of the sliding doors consists of three glass panels set in live rubber in hard rubber frames.

Doors operate on roller bearings of the lock-type glide construction. Triple position wrapping shelves and scale shelf are provided. Cove lighting consists of flush front type reflectors.

New line of portable, packaged coolers for bottled beverages consists of four models, all of a design permitting installation under a standard bar.

To provide maximum efficiency, the cooling coils surround the outside of the cooling compartment. Soldered to the outside of the cooling tank, they give direct conductivity to the inside of the cooling compartment, and allow for a smooth interior surface facilitating ease in cleaning. Ice is made and released automatically into water bath, insuring long hold-over periods and savings on operating costs.

New milk coolers are called the "Pact-O-Coil" and "Master-Flow" models. Both designs employ hermetically-sealed condensing units, and each is available for remote installation.

The Pact-O-Coil is so called because of its compact design. The coil is installed in a vertical position, and placed between baffles to provide natural circulation and fast heat extraction. In this way the milk in the tops of the cans is cooled with the same degree of efficiency as the milk at the bottom, it is claimed. The Pact-O-Coil takes up only 4 inches of vertical space in the back.

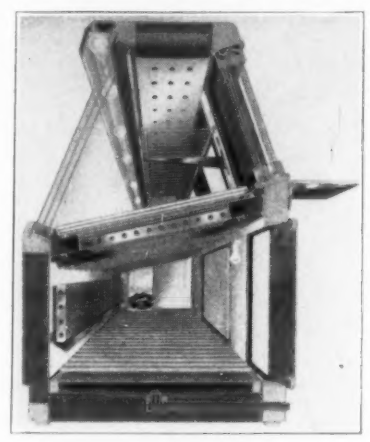
This cooler is available in 12 sizes, ranging in capacities from 2 to 18 10-gallon cans of milk. Any cooler except the 2 and 3-can models may be equipped with an "agitator-circulator" which quickens the cooling process by greater water circulation.

Models for aerator attachments are also available for rapid cooling. A pump circulates the refrigerated water from the cabinet through the aerator, returning it to the cabinet. As fast as each can of milk is cooled over the aerator, it is stored in the refrigerated water bath. Thus the cans of one milking may remain in storage until cans of second milking have been cooled in the same manner and are ready for shipment.

The Master-Flow series of milk coolers is comprised of two compartments separated by the cooling coils, either compartment being usable for cooling and storage. A self-leveling feature of cooling water keeps circulating water "neck-high" in the cooling chamber and a few inches in the storage chamber.

In operation, cans of the first milking receive the full benefit of the directed flow of the neck-high water bath. With the placement of the second milking in the other compartment, the circulator switch is reversed, and the second milking receives the same directed flow of neck-high water bath.

Display Case Details



Cutaway showing the interior of the new meat display case.

New Sherer Cooler Has 'Tailor-Made' Walls

MARSHALL, Mich.—A new line of walk-in coolers, with "tailor-made" treatment of exterior walls to suit the needs of individual users, has been announced by Sherer-Gillett Co. here.

The new units conform in general symmetry and trim to the Sherer line of display cases, and the recently announced series of reach-in refrigerators.

Doors, windows, and finish may be varied in accordance with the individual job's requirements. Four general styles are available, the first with porcelain front and right end, walk-in door at right, display window in front wall, and two retail doors below for packaged products.

Second style is windowless, with porcelain front and right end, walk-in door at right. This type provides ample room for hanging large cuts of meat. Third style has porcelain front, with end of plain sheathing, two retail doors with glass fronts, and decorative mirror in the center.

Fourth style is for use where the cooler does not show in the retail store. Exterior is of sheathing, with walk-in door in any of the four walls. This model also is without windows.

Featured in the new line are coolers 7 feet 6 inches high, which are said to sacrifice no head room because of the use of forced-convection cooling coils of the wall type. The low-height coolers also are said to provide even circulation for stored products, and to lessen refrigeration load because of their smaller gross cubic capacity.

Penn Designs Control For Display Cases

GOSHEN, Ind.—A new, single-unit "nofrost" control for above-freezing refrigeration applications, including display cases, walk-in coolers, florists' refrigerators, and similar installations, has been introduced by Penn Electric Switch Co.

Listed as the "313 Series," the new Penn control provides automatic control of temperature in above-freezing refrigeration applications by regulating the compressor, and also provides automatic defrosting of evaporator coils following each cycle of compressor operation.

The control is designed to be mounted in any convenient location on the outside wall of the refrigerated cabinet, or near the compressor.

Temperature control is by means of a sensitive, fin-type feeler bulb. Calibrated "cold control" adjuster in the unit outside the cabinet always is accessible to the user for changing the temperature.

There is no wiring inside the cabinet, one simple, two-wire connection to the compressor motor being all that is necessary, it is claimed.

Control has a cabinet temperature range of from 33 to 52° F., low side pressure range of from 20-inch vacuum to 50 lbs., and high side pressure range of from 125 to 225 lbs.

Standard Refrigerator Named Hussmann Distributor

PHILADELPHIA — Standard Refrigerator Co. of Philadelphia, manufacturer of refrigeration equipment for more than 35 years, has been made an authorized distributor in this terrritory for the Hussmann and Steiner products of Hussmann-Ligonier Co., St. Louis manufacturer of commercial refrigeration equipment.

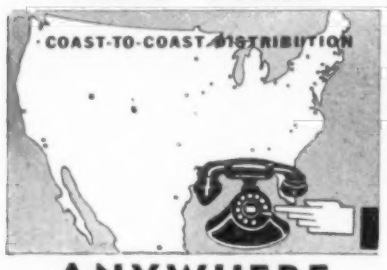
Name of the new distributing organization has been changed to Standard-Hussmann Corp. J. Brooke Kavanagh, formerly general manager of Standard Refrigerator Co., is president; Roland E. Frederick, former Standard president, is vice president; William Custer Walton is secretary and treasurer.

Anaconda Copper Refrigeration Tubes
Unusually soft!

THE AMERICAN BRASS CO.
FRENCH SMALL TUBE BRANCH
General Offices: Waterbury, Conn.

For Information on Motors
FOR ALL TYPES OF
Air Conditioning and Refrigeration Equipment
WRITE TO
Wagner Electric Corporation
6441 PLYMOUTH AVE. ST. LOUIS, MO.

ANY TIME



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You're always near a source of
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Prompt delivery in 20-, 60-, 90-, or 130-lb. cylinders from adequate stocks in principal cities.
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Foresighted manufacturers are building a reputation for extra service into their air conditioning units by using and specifying genuine Hussey Pure Lake Copper for all parts subject to corrosion and high humidities.
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SUPERIOR VALVE & FITTINGS CO.
500-37TH ST. PITTSBURGH, PENNA.
"FORBES PRODUCTS"
Manufacturing a complete line of DIAPHRAGM PACKLESS VALVES, MANIFOLDS, ACCESSORIES and FITTINGS for the Refrigeration and Air Conditioning Industry.

Every facility of Servel's vast factory is available to meet your refrigeration needs, whether large or small.
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COMMERCIAL REFRIGERATION AND AIR CONDITIONING
Write For Details to Servel, Inc., Electric Refrigeration And Air Conditioning Division, Evansville, Ind.

Congress of American Industry Adopts Platform For Business In 1939

Editor's Note: When the National Association of Manufacturers met recently in New York, a platform was drawn up for the guidance of its members during 1939. It is worthy of study as a well-rounded statement of the aims and viewpoint of business men.

The Congress of American Industry, conducted annually by the National Association of Manufacturers, adopted the following platform for the guidance of its members during 1939:

The United States is nearing the end of nine years of sharply arrested development in its economic life.

Never before in our history has so long a period passed without recording a new high point in industrial production and individual well-being. It has been a period of trial and difficulty for even the most favored among us; of distress and anxiety for the less fortunate. Enterprise has been discouraged, the flow of new capital reduced and employment retarded; the resulting depression has borne down heavily on the typical American family.

Today there are still far too many employable men and women who want work and cannot find it.

The first concern of business continues to be recovery and jobs.

There is an enormous pent-up demand which, if met, would provide jobs, raise living standards, and increase security for the citizen against individual misfortune.

America's progress depends upon a united effort of industry, commerce, agriculture, and labor in cooperation with government.

All of these groups have made mistakes, and we in industry admit our share. All have learned that there is a true harmony of interest between them, and there is a growing demand for intelligent teamwork. If these groups work together for future progress, more jobs and better living can be provided for the 30,000,000 American families.

1. WHAT HAS MADE AMERICA'S PROGRESS IN THE PAST?

This country's past progress in achieving the world's highest living standards for its people has been upon three fundamental American principles: Religious and other individual liberties; representative political democracy; private enterprise.

Experience as well as present-day observations in many lands show that when one of these fundamentals is attacked the other two also are threatened. Political rights, intellectual liberty, and religious freedom are inevitably bound up with the preservation of private enterprise and economic opportunity.

Our very existence as an independent nation may be traced to the spirit of individual enterprise shown in colonial times. No combination of privileged interests, no economic dictatorship by government authority produced our past progress. It was achieved only through conditions which encouraged the individual to think, to work, to save, to invest, to invent, to take risks, to carry on the rivalries of wholesale competition. Any program of dictated economy would be a reversal of the American experience and tradition.

America's main problem today is how to apply these time-tested principles and institutions to the conditions and requirements of present-day society.

This task is not the special concern of any one group, but is a national problem. Failure to solve it involves living on the nation's fat and causes a continued decline in living standards. We have already followed this course too long.

2. WHAT INDUSTRY SUGGESTS FOR AMERICA'S FUTURE

While recognizing the necessity of unemployment relief, the primary obligation is to create healthy business by eliminating the causes of unemployment.

Desire for healthy business is not alone the interest of industry but is likewise the vital concern of every owner of a lot, a home, a farm; the millions of industrial workers and all others who perform services, and who together receive 85% of the national income; 64,000,000 holders of life insurance policies, since these are backed up largely by investments in private business; 44,000,000 saving depositors; 20,000,000 individual stockholders in American companies; 6,000,000 investors in building and loan associations.

Industry pledges its best efforts in this national endeavor, including detailed review of its own operations and policies, and full recognition of its social responsibilities.

Industry's program includes specific suggestions with respect to:

BUSINESS RESPONSIBILITY

Business men generally are aware that their human responsibilities include the operation of business with regard for the best interests of customers, employes, and stockholders, and with recognition at all times of the rights of the public. Such policies contribute to understanding, promote harmony, and thus tend to increase jobs and raise living standards. Industrial management should therefore:

1. Interest itself actively in the economic and social needs of the times, present suggestions to meet the problems involved, and tell the story of industry's view and accomplishments to the public.

2. Publish frequently simple and informative statements concerning financial and other operations, in order to interest both employes and stockholders more directly in company problems and operations.

3. Consistently maintain quality standards, develop and improve products offered by means of market research, technical research, and experimentation; make price adjustments as rapidly as improved manufacturing processes and other economies will permit without injustice or injury to employes, creditors, and owners, including stockholders.

4. So manage its financial, inventory, and customer credit policies as to effect the maximum volume of production, distribution, and employment that can be maintained continuously.

5. Maintain sound relations with its employes as set forth in the following section of this program.

6. Conduct its business so that it is at all times a desirable citizen of the local community in which it operates.

7. Encourage effective functioning and cooperation of associations to consider community, state, and national problems.

LABOR RELATIONS

Industry recognizes mutually satisfactory labor relationships as an essential to industrial efficiency and to the providing of more jobs and better living.

Industrial management recognizes that employes who wish to bargain collectively are entitled to do so, in whatever form they determine, through their own freely chosen representatives, and without intimidation or restraint from any source.

The disturbed labor relations which have existed during the past few years are a major obstacle to recovery. Industry pledges its full cooperation in whatever changes may be necessary to correct these conditions.

In order to promote mutually satisfactory labor relations which will increase production and provide more jobs, we urge employers to maintain a well-defined labor policy suitable to the conditions of the company, community, and industry; to provide opportunity for free interchange of ideas between management and employes on all matters of common interest, adequate opportunity for prompt consideration and adjustment of complaints and fair wages for work performed, with incentives where they can be fairly applied as a reward for individual or group accomplishment; to maintain good working conditions.

Constant improvement of the methods of production creates jobs. Industrial management should endeavor to cushion the effects on individual employes of the introduction of new processes and labor-saving machinery; management and labor should cooperate in using every practicable means to provide continuity of employment, and should study the annual wages of employes in relation to their hourly earnings and the number of days per year the plant operates, including careful consideration of the effect of hourly rates upon continuity of employment and income.

TOOLS FOR MORE JOBS

The tools and machinery to work with must be bought with savings. On the average there is an investment in manufacturing of $6,500 back of each worker. For over 100 years in our American system of private enterprise the major source of such funds has been savings of business, and the source of next importance has been savings of individuals.

These investments have made men's efforts vastly more productive, by furnishing the aids which science, invention, and engineering have made possible, through better tools and power equipment. Such tools and equipment constitute a substantial part of the privately owned wealth of the nation.

Saving and investment constitute the keystone to private enterprise. Anything that controls or limits these processes will eventually control and limit private ownership and use of property and will fix the underlying characteristics of our American life, including all aspects of personal liberty.

Since 1930 the total volume of savings and credit invested in business has been only a fraction of that needed to provide capital facilities which could either maintain employment and living standards or increase them for an increasing population. The deficiency created has in large measure been caused by discouragement and impediments to new enterprise created by public policies and legislative enactments. It is essential for sustained recovery that investment of savings in private enterprise be greatly increased and maintained.

Though designed for the protection of investors through correction of abuses in the creation, issuance and subsequent trading in corporate securities, yet both the Securities Act of 1933 and the Securities Exchange Act of 1934 include provisions which are unnecessarily severe. Also the cost and time-consuming requirements for compliance with the provisions of these statutes are greater than necessary for the protection of investors.

Since the enactment of these laws there can be little question but that they have had a substantial effect in holding down to the present subnormal level the aggregate volume of new corporate securities issued and offered for sale to the public. While these enactments are burdensome upon all business it should be emphasized that they bear down with special weight upon small and marginal enterprises, the importance of which in our American economy needs no argument. Repressive provisions of these statutes should be moderated without impairment of their essential regulatory functions.

Job-making capital investments have been discouraged also in recent years by government policies which create fear of inflation. Such fear would be dispelled by: Definite and dependable currency standards which permit industry to plan ahead; public debt levels not so high as to constitute a threat to currency stability, impose undue burden on the taxpayer, or pile up excessive obligations for future generations to pay; immediate, genuine, and determined steps toward a complete balancing of the national budget.

PURCHASING POWER

Purchasing power for the individual means the amount of goods and services he can buy with his money. The nation's problem is to increase purchasing power—particularly that of those who have the smallest amount of it—but the question is how to do it. We know that the greatest advance in living standards has occurred when production was constantly increasing. The lesson of history is that purchasing power of the population is determined by the total volume of production and distribution of goods and services and that our future standard of living depends upon the volume of our future production.

Schemes to create purchasing power by artificial redistribution of wealth do not increase production and consequently do not bring about increased employment. On the contrary, they drive capital into hiding, destroy the spirit of enterprise, and reduce the volume of employment. Producing more for constantly widening consumption is the only sound form of wealth distribution.

Attempts to manipulate the purchasing power of money without regard to the volume of production will not improve the standard of living.

Sound prosperity for farm and factory can exist only when equitable price relationships bring about maximum exchange of their goods and services.

REGULATION VERSUS CONTROL OF MANUFACTURING ENTERPRISE

Regulation, for the public good, of certain aspects of private enterprise is recognized by all as an essential function of government. Government should not, however, either operate or directly control the facilities of private business engaged in production or exchange of goods and services. Regulation and control are inherently different. Regulation functions from the outside, fixes in advance the rules of conduct, and should deal impartially with all. Control penetrates into the interior and becomes a part of managerial authority. When government control enters, the effectiveness of private management is impaired if not destroyed.

Regulation of manufacturing enterprise should be confined to insuring freedom of fair and open competition, together with protection of the rights of others whether competitors, employes, employers, consumers or the public.

Wherever regulation of manufacturing enterprise is imposed by government it should be embodied in specific statutes and administered, insofar as is possible, by the established executive departments of government.

Any necessary special agencies should be given a minimum of administrative latitude and should be required to exercise such administrative discretion by the issuance and advance publication of specific regulations, with opportunity for public hearings thereon.

Regulations issued by such special agencies and the administrative rulings of both executive departments and special agencies should be subject to adequate judicial review of the law and the facts by the established judicial departments of the government.

Government should not attempt by compulsion or inducement to control the kind or quantity of goods and services to be produced and distributed to the people, beyond measures required to insure, fair, free, and open competition and to protect the public health. Any such control will lead inevitably to the destruction of private enterprise and the rise of some form of State-controlled enterprise.

TAXES

It has been a familiar experience for American families for the last nine years to cut down household expenditures. While family budgets have thus been curtailed, government budgets have expanded in spectacular manner.

The mounting tax burden has meant that the self-supporting person has had to turn over an ever-larger portion of the proceeds of his labor to meet the expense of government. The cost of unemployment relief is a load on all employed persons who must divert part of their own income to support the unemployed.

Each dollar paid by the people in taxes is a dollar withdrawn from their individual purchasing power. Taxes add to the cost of what is bought, reduce the volume of sales and production and lessen the incentive for capital to invest.

We believe that the government itself should consider the advisability of lowering tax rates as a means of increasing tax receipts. The psychological and economic effects would be to give industry and its customers a "go ahead" signal, thus promoting industrial production and distribution and consequently raising government income.

We recommend the creation of a non-partisan representative committee to study the whole tax problem and make suggestions for complete scientific revision, clarification, and simplification of all forms of national, State, and local taxes.

GOVERNMENT ECONOMY

Useful and necessary expenditures by government must always be provided for, but the time has come for a better understanding with respect to the portion of the total national production which can be diverted to governmental purposes without causing a loss of jobs and lowering living standards.

We recognize the value of accurate accounting by industry and believe that the same standards should be pursued by government in preparing its own financial report, thus enabling the citizen to understand the operations of his government.

We advocate widespread adoption of the spirit as well as of the letter of the civil service system in the selection of government employes, as a means of promoting both efficiency and economy.

GOVERNMENT COMPETITION

The function of the government is primarily political, not economic. It was neither conceived nor constructed to compete with its own citizens in the production and distribution of the things used by the people.

Government business will invariably destroy private business when in competition with it. Private enterprise cannot compete successfully with enterprise carried on by government. In the final analysis deficits when created by government enterprise are always paid by the taxpayer.

If and when public enterprise is undertaken, the field in which it is to operate should be clearly defined and shut off from the area in which private enterprise functions.

Continuing and increasing government competition with private enterprise is a major deterrent to the flow of job-creating capital into business.

FOREIGN TRADE

Although national progress is to some extent affected by international factors beyond our control, this is less true of the United States than of most of the other principal nations. We believe that all foreign trade and tariff policies should be related to the needs of the home economy with the objective of protecting the standard of living of the American people, particularly that of the workers and farmers.

Within this frame work foreign trade should be encouraged by every legitimate means.

LOOKING FORWARD

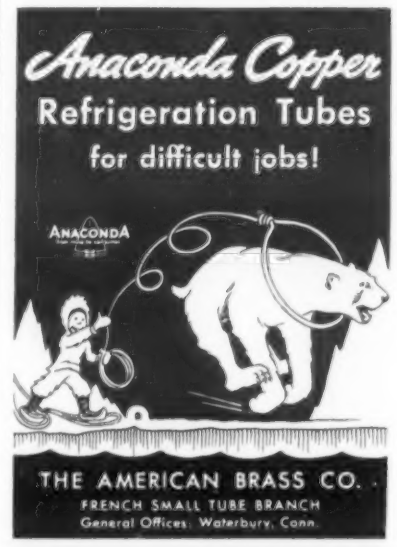
The principles and policies presented in this program, if put into practice, would furnish incentives to invest, stimulate production, and provide jobs, thereby ending the nine-year interruption of progress toward better living.

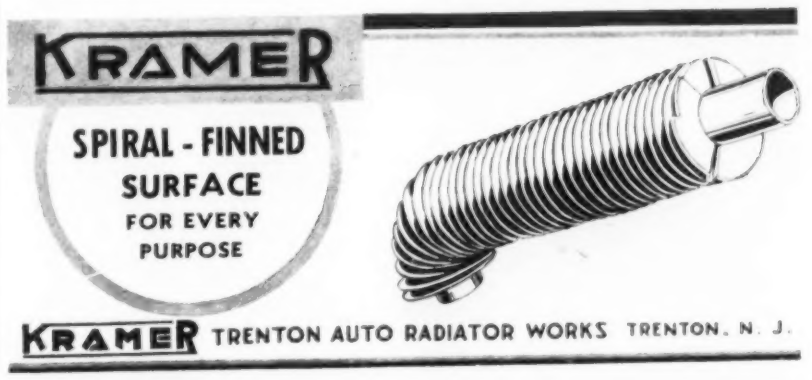
The removal of existing obstacles is a job for government, labor, agriculture, commerce, and industry, requiring the best efforts of all.

Out of such common effort reborn confidence would create opportunity for private enterprise to make jobs for men and women now carried on relief rolls. Thus a sound human basis would be laid for tapering off government expenditures and relieving individuals and business of back-breaking tax burdens. The removal of obstacles to the creation of more jobs and better living is an inspiration which challenges the heart and mind of American industry.

America was founded by men and women deeply influenced by the principles of religion and freedom. We commend to those who comprise American industry today re-dedication to the faith of our fathers and to the principles which underlie the American competitive economic system, without which our spiritual freedom and our material progress cannot be maintained.

VIRGINIA SMELTING CO.
WEST NORFOLK, VA.





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Saturation vs. Obsolesence

DOUBT as to the future of the refrigeration business, especially household, is often heard in discussions among men in the industry—particularly some of those who are on the "fringe." Such doubt is based on the assumption that saturation is progressing rapidly, and that the unsold portion of the market consists largely of low-income families.

But those who are worried about saturation fail to take into account the inevitability of obsolescence. Every year from now on hundreds of thousands of present household refrigerator owners will be ready to replace them. The 10-year-old jobs are growing noisy, and relatively expensive to operate. Nor will their appearance be a source of pride to either the housewife or her husband.

Millions of household refrigerators have been sold by specialty methods at a profit; they should be replaced by specialty salesmen—and at a profit. This will call for revised thinking on the part of many elements of the industry.

Obsolescence Counteracts Saturation Bugbear

So much for mere replacement. Obsolescence is "something else yet again, Mawruss," as Abe Potash would have put it. Obsolescence will come when refrigerators are so constructed as to make present owners dissatisfied with the refrigerators they have, whether or not they are giving satisfactory service. Utilization of this principle has enabled the automotive industry to conquer the saturation bugbear, and it can do the same thing for refrigeration.

One reason new developments which would obsolete present refrigerators have not appeared as yet is that they haven't been needed. Business was good enough without them. It seems safe to predict, however, that such new developments will be bound to be presented in the very near future.

For example: on a single day last month 21 patents were issued to a single manufacturer, and all pertained to two-temperature cabinets!

Undoubtedly the recent rapid advances in the distribution of quick-frozen foods, if continued, will make two-temperature refrigerators a matter of necessity, and will obsolete practically everything now in the field.

High Humidity, Frozen Food Compartment Next

One of the industry's best-known engineers predicts that "in the next two or three years no household refrigerator will be modern or acceptable if it does not provide for the keeping of frozen food, and does not provide for high humidity in the regular food compartment."

That engineers and service men are preparing for the widespread use and storage of quick-frozen foods (which require sub-zero temperatures) is indicated by the important place this subject occupied on the programs of the recent conventions of the American Society of Refrigerating Engineers, and the Refrigeration Service Engineers Society. Both groups are devoting much of their attention to the subject, and no doubt much progress along these lines will be made in the next year or so.

Definite Need For Real Changes

Two-temperature jobs comprise but one instance of the opportunities open to enterprising manufacturers and independent engineers. There now is a definite need for real changes and improvements in household refrigerators, and the industry has never yet failed to rise to a need or to an opportunity.

So, to the calamity howlers who lugubriously declare that refrigeration has reached its peak and now is on the way down, you can reply that the industry is still in its infancy, that obsolescence will more than take care of saturation, and that profits and volume are in sight for many years to come.

QUOTED

Let's Keep the Brakes In Good Order

WHEREVER an attempt has been made to overthrow a social order, whether an American revolution or a German putsch, the revolutionists invariably follow two lines of attack. One is to kindle hate against those who symbolize the existing order. The other is to enlist the physical force to get control.

We see illustrations wherever we look. In Russia, Lenin fired the workers and soldiers with deadly hate of aristocrats, land owners, and the intelligentsia. In Italy, Mussolini fanned Italian emotions to white heat by stigmatizing strikers and others of his old friends in the labor unions as Communists seeking to Russianize Italy. Hitler imbued the Germans with loathing of the Jew as the personification of all evil.

We are changing our social system in the United States, and by the same methods. Whether for good or ill, there can be no mistaking the historic technique of revolution.

Our hate campaign has been directed at business and the business man. Seldom a day has passed or an hour on the radio that the public has not been exhorted to hate business. Bankers were "money changers" to be driven from the temple; investment bankers appropriated the widow's mite without conscience; the "power trust" was bleeding the people white; commercial aviation was without morals; manufacturers were exploiters of child labor, operators of sweat shops, and labor tyrants; lumber, oil, and coal men were "barons"; stock and grain exchanges were gambling houses; retailers were gougers and chiselers; steel and chemical companies, formenters of war; railroads mismanaged; telephones, too much power for the public good; and the stage now set to complete the cycle by harassing insurance institutions. Lawyers, newspapers, every agency of free opinion which might counteract the campaign of hate have been abused.

No epithet Hitler could invent to describe the Jews was more hate-arousing than those we applied to business men. Perhaps the high point was reached when a federal administrator called them "little men with rodent blood in their veins." Our newest administrator was milder when he called the employer who couldn't pay the fixed wage "indecent."

To harvest the sowing of hate and overturn the established order, revolutionists must march with muskets. Black shirts, brown shirts, secret orders, storm-troopers, seizure of the army, their part we all know. But we, being a wealthy nation, do it differently—as Professor Tugwell said in an unguarded moment, by "subter fuge"—painlessly, but just as effectively. Our muskets are money.

The head of P.W.A. does not march with armed men into 124 municipalities to confiscate private power plants. He marches in with $160,628,752. Retail stores are not taken over by force as in Russia; we establish competitive cooperatives with money that was appropriated "to relieve distress." Banks do not yield up their buildings to armed forces, they deliver their depositors' money to the Secretary of the Treasury, and face competition in 19 great federal lending agencies.

We, as American citizens, would fight an overturn to the Fascist state by armed troops, yet, we have complacently viewed the march which has taken us three-quarters of the way down the road to Fascism. Washington today controls and allocates most of our working capital; it fixes wages, fixes hours, and prices, and is in 250 different lines of business. Washington is moving surely into state capitalism that marks the totalitarian countries of Europe.

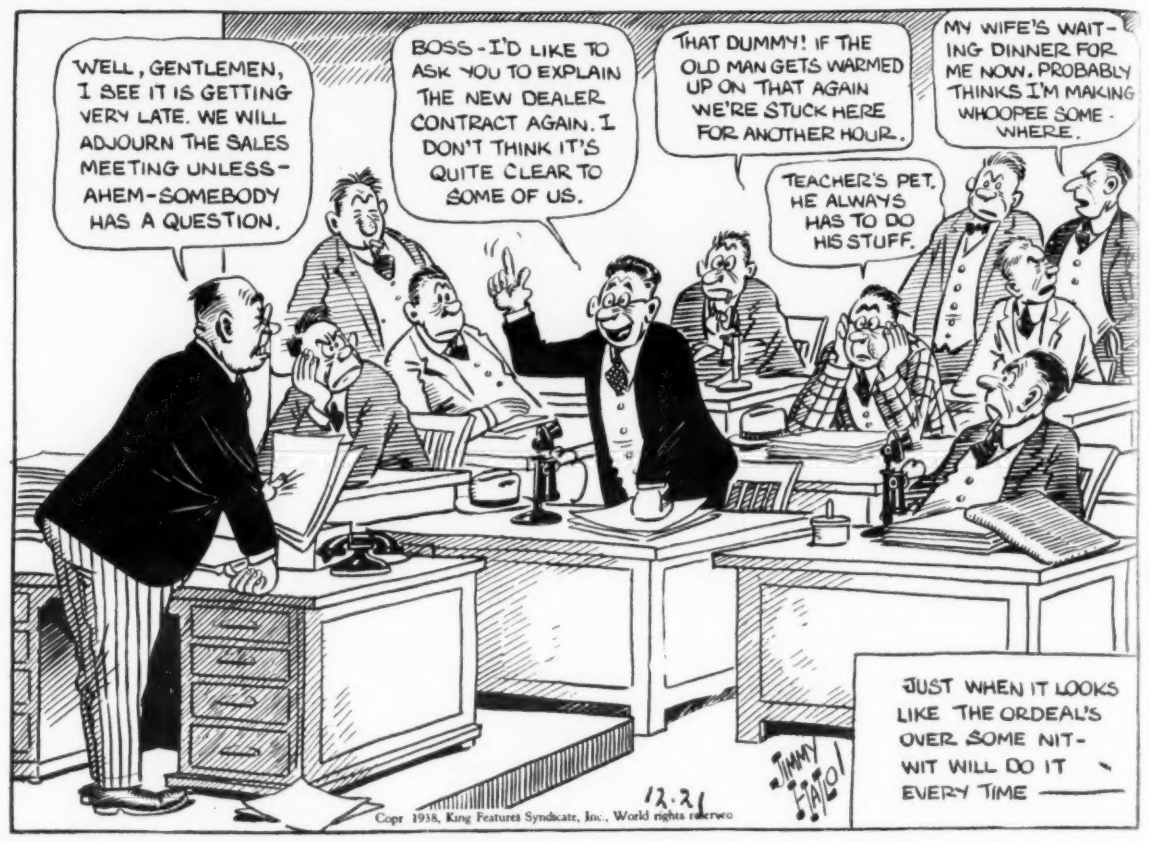
Those who deplore the changes taking place in our American system of free enterprise should continue to help dispel the hate against business, should join the movement to show that business is beneficent, not malevolent, that "What helps business helps you," and, second, move to deprive the revolutionists of their muskets by demanding tax reduction and that expropriation of savings through federal borrowings be stopped.

Recent events show that democracy can apply the brakes, but there must be no let-down in keeping the brakes in good working order.

—*Merle Thorpe in Nation's Business.*

"BIG Government is the legitimate child of big business. It is my belief that there will never be any substantial prosperity re-established in the United States until you set business free from all forms of arbitrary control, whether it is financial control, exerted in a big city—or political, exerted in the capital of the nation."—Senator Joseph C. O'Mahoney, United States Senator from Wyoming and chairman of the Temporary National Economic Committee.

They'll Do It Every Time . . . By Jimmy Hatlo


WELL, GENTLEMEN, I SEE IT IS GETTING VERY LATE. WE WILL ADJOURN THE SALES MEETING UNLESS-AHEM-SOMEBODY HAS A QUESTION.
BOSS-I'D LIKE TO ASK YOU TO EXPLAIN THE NEW DEALER CONTRACT AGAIN. I DON'T THINK IT'S QUITE CLEAR TO SOME OF US.
THAT DUMMY! IF THE OLD MAN GETS WARMED UP ON THAT AGAIN WE'RE STUCK HERE FOR ANOTHER HOUR.
TEACHER'S PET. HE ALWAYS HAS TO DO HIS STUFF.
MY WIFE'S WAITING DINNER FOR ME NOW. PROBABLY THINKS I'M MAKING WHOOPEE SOMEWHERE.
JUST WHEN IT LOOKS LIKE THE ORDEAL'S OVER SOME NIT-WIT WILL DO IT EVERY TIME
12-21
JIMMY HATLO
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LETTERS

Not Only a List, But Individual Histories

General Electric Co.
1 River Rd., Schenectady, N. Y.

Editor:

You have made a good many contributions to the electric refrigeration industry, and not the least of those, in my humble opinion, was the list you published in 1932 I think it was, to the effect that some 115 manufacturers of refrigerators have gone out of business, or at least have ceased making refrigerators, and that 46 more or less could not be reached by mail.

I am wondering if you have brought this information up-to-date. A lot of water has gone over the dam since 1932 and I would appreciate getting up-to-date information.

C. M. RIPLEY

Answer: We have published something which is more than just a list of electric refrigerator manufacturers who have been in the business and then dropped out.

We have published a brief up to the year 1936 corporate history of every manufacturer who has been in the business and then dropped out. This information is published in the 1936 Refrigeration & Air Conditioning Specifications Book, which also gives complete product and specifications data on every model of every make of refrigeration equipment manufactured through 1936.

This book is available at a cost of $2.00.

Another Warning on Purging Into a Room

Johnston Appliance Co.
207 N. College St., Auburn, Ind.

Editor:

In your Dec. 7 issue of AIR CONDITIONING & REFRIGERATION NEWS, I note where Mr. Bowen was overcome by methyl chloride. This article immediately recalled to my mind an incident that happened to me several years ago.

I was servicing a drink box that someone had stuck an ice pick in the coil. After soldering the hole I turned a cylinder of methyl chloride, containing about two pounds, into the high side and emptied it. When I placed the unit in operation I found that I had a decisive over-charge. The box was against the wall on one side and on the other was a bar about 4 feet out, beer cases were stacked around, making it quite close.

I started purging into the air and then intermittently starting and stopping the compressor. After several small purges I found that there was still too much gas, so I opened the discharge valve wide and allowed the vapor to become almost white about the box; closing the valve I hit the push button on the thermostatic switch with my valve wrench. The spark from the capacitor-start motor caused the methyl chloride to explode, and all I remember was a blinding flash, and the big plate-glass windows rattle.

I was lucky, however, and escaped with only a singed head, a slightly burned nose and right arm. The room had a dark blue smoke and a strong odor of chlorine gas.

So allow me to also caution anyone purging methyl chloride into a closed room.

BYRON A. DICKMAN

Interest In Frozen Foods Warming Up Again

Fairbanks, Morse & Co.
217 S. Eighth St., St. Louis, Mo.

Editor:

We have had a number of inquiries recently in regards to the equipment and complete information on the frozen fruit and vegetables that are being put on the market today.

Any information or reference you can give us in regards to complete details in regards to the frozen fruit would certainly be appreciated by the writer.

I know that at times you have had some remarks in your paper on this and if you can supply us with complete information in regards to this such as the temperature that this vegetable is frozen, the temperature that is maintained, the process for which it is frozen I will feel that it is an additional service we are getting from your paper.

W. B. KELLA,
Manager, Air Conditioning Dept.

Answer: We have recently published a considerable amount of information about this subject in various issues of AIR CONDITIONING & REFRIGERATION NEWS.

Specifically, you might refer to the Sept. 21 issue of the NEWS, page 6, which gives a picture of what has been done and what must be done to make frozen foods retail profitably and successfully; to the Oct. 26 issue with its reports of the Dairy Industries Exhibition and the Food Preservation Conference at Knoxville; to the Nov. 2 issue which deals on page 14 with various freezing methods and freezing temperatures and to the Nov. 23 issue, page 8, on which is published a survey of trends on retailing frozen foods; and the Dec. 14 issue. These issues are available at a cost of 20 cents each.

Nothing Wrong

355 W. Wabash St.
Berne, Ind.

Editor:

In answer to your letter of quite some time ago in regards to the AIR CONDITIONING & REFRIGERATION NEWS and my reason for not subscribing for same.

No, there was nothing that I can say as having been wrong with the periodical.

As a student in air conditioning along with my regular work, it just seemed impossible for me to devote enough time to thoroughly read the paper. Perhaps you think that this is a poor argument and that I need it all the more for that reason. I, however, think that the books on air conditioning, which you publish, would be of greater benefit.

As soon as I am through with my course, I again hope to subscribe for the NEWS, at that time, I also hope to appreciate the paper in a still greater measure than I have heretofore.

WALDO J. STAUFFER

Air Conditioning

Dealers Don't Oppose Cincinnati Regulation

CINCINNATI—Indicative of the interest which local governmental agencies are taking in the control and regulation of air-conditioning systems is the "Regulation of the Board of Health of Cincinnati, Ohio," which governs operating temperature differentials for commercial air-conditioning systems.

The regulation, which has been in effect since December, 1936, requires that differential limits not exceeding 15° F. be maintained between indoor and outdoor temperatures.

Hal Jennings, manager of the Cincinnati office of Avery Engineering Corp. of Cleveland, reports that the contractors in Cincinnati have had little difficulty in keeping systems operating within the specified limits.

Carl Bimel, president of the air-conditioning division of Cincinnati Electrical Association, states that while "the ordinance does not take into account any air motion or effective temperature or control of humidity . . . the feeling is that it is better than nothing.

"The Health Department enforces it; not with any regular inspection, but just dropping in occasionally to see that it is being reasonably well lived up to.

"Last summer there were only one or two cases where they found a great deal of difference in temperature, and those cases were quickly corrected. They are working on a more scientific regulation, but it is uncertain when it will come through.

"My impression is that the local dealers have no fault to find with this regulation and, while it is not very scientific, it is of some value in preventing some operations that might give a black eye to air conditioning."

Text of the Cincinnati regulation follows:

"Be it resolved by the Board of Health of the City of Cincinnati, State of Ohio, that the following regulation, intended for the general public, is deemed necessary for the prevention, abatement, and suppression of nuisance in the City of Cincinnati, Ohio:

"Section 1. The temperature of artificially cooled restaurants, theaters, stores and other public gathering places, shall not be more than fifteen degrees Fahrenheit (15° F.) cooler than the temperature in the shade on the outside, not less than one hundred feet (100 ft.) distant from the building.

"Section 2. Any person, firm or corporation, who shall violate any of the provisions of this regulation shall, upon conviction thereof, be fined not less than $25 or more than $100, and for each subsequent offense shall be fined not to exceed $100 or imprisoned in the city Workhouse not to exceed 90 days, or both.

"Section 3. This regulation shall take effect and be in force on and after the earliest period allowed by law.

"Passed Dec. 11, A.D. 1936.

"M. B. Brady, M.D., President.

"Attest: Joseph Back, Clerk, Board of Health."

Russian Fair Exhibit To Have Unusual System

NEW YORK CITY—One of the largest cooling plant installations in the New York World's Fair has been designed by A. Warren Canney, air-conditioning consultant, for the Soviet Pavilion.

The air-conditioning system, which has a capacity of 425 tons, is being installed by the York Ice Machinery Corp. Designed to provide for a continuous stream of visitors, numbering 3,500 at the peak, the system will operate as a ventilating unit in case of temporary breakdown.

The system is being installed in a manner which permits dismantling and re-erection on another site.

Windowless spaces in the building will have large openings to the outdoors, but the openings will be architecturally concealed.

Illinois University Plans Conference March 8-9 On Air Conditioning

URBANA, Ill.—A two-day conference on air conditioning will be held at the University of Illinois here on March 8 and 9, 1939, under sponsorship of the department of mechanical engineering and the Engineering Experiment Station of the College of Engineering.

Purpose of the conference is to present technical information on current problems and apparatus involved in small and medium size all-year comfort air-conditioning installations in as non-technical a manner as possible, in order to serve the small dealer, installer, owner, and prospective owner of air-conditioning equipment.

Papers to be presented will cover modern equipment, design of duct systems and selection of fans, air distribution in spaces, regulation of air temperature and humidity, physiological information, refrigeration and condensation problems, insulation types and applications, and water supply, conservation, and disposal problems.

The air-conditioning equipment in the laboratories of the university will be available for inspection at convenient periods during the afternoon sessions. There is no charge for either registration or attendance. Prof. W. H. Severns is chairman of the general committee of the conference.

DeWitt Wyatt Buys Out Conditioning Firm In Columbus

COLUMBUS, Ohio—DeWitt H. Wyatt has purchased the entire assets of Cooling & Heating, Inc. from Earl Bougher, receiver of the corporation, and is operating his own company under the name of Cooling & Heating Supply Co. Mr. Wyatt formerly was a partner in Cooling & Heating, Inc.

The new firm will supply refrigerating, ventilating, and heating equipment and design the equipment into cooling and heating systems, Mr. Wyatt explained. Engineering services will be made available to architects, engineers, and contractors.

Cooling & Heating Supply Co. will represent the following concerns in about 25 central Ohio counties: General Refrigeration Corp. (Lipman and G.R. refrigerating and air-conditioning equipment); McQuay, Inc. (coils and air-conditioning units); Hook Mfg. Co.; Wilson & Co.; Sterling Engineering Co.; Commodore Heaters Corp.; Richardson & Boynton; Peerless Electric Co.; and Garden City Fan Co.

One of the best-known air-conditioning engineers in central Ohio, Mr. Wyatt has long been active in refrigeration and air conditioning. He was with the engineering department of Frigidaire Corp. at Dayton, Ohio for considerable time, leaving in 1928 to become an independent sales engineer.

For the first five years of his air-conditioning work in Columbus he handled Frigidaire equipment, and then took on Kelvinator for two years. In recent years he has designed and sold air-conditioning systems using Lipman and other makes of equipment.

Mr. Wyatt is a member of the American Society of Heating & Ventilating Engineers, the American Society of Mechanical Engineers, the Engineers' Club of Columbus, the Engineers' Club of Dayton, and the Ohio Engineering Society.

13 Jobs Sold In October In State of Oklahoma

OKLAHOMA CITY, Okla.—Thirteen installations of air-conditioning equipment were made in the Oklahoma City territory during the month of October, according to dealers' reports to Oklahoma Gas & Electric Co.

Conditioning Co. Named Carrier Distributor

NEWARK, N. J.—Appointment of Conditioning Co., Inc. as distributor in this area for products of Carrier Corp. was announced by John A. Powell, president of the company. Offices, showroom, shop, and warehouse have been opened at 368 Broad St.

The Newark company was organized by Mr. Powell, H. E. Wood as vice president and secretary, and Joseph H. Farnham as treasurer. Mr. Powell has been engaged in the industrial oil burner field, and since 1920 in refrigeration and air-conditioning with Brunswick-Kroeschell. He also was affiliated with Lightning Electric Co., former Carrier dealer.

Mr. Wood until Dec. 1 was employed by Carrier Corp. in charge of distributors in northern New Jersey, metropolitan New York, Long Island, and Westchester. Prior to that he was with Carrier in Latin America, and previously was associated with a distributor of Delco-Light and Frigidaire, operating in 20 foreign countries.

Joseph Davis Elected Head Of Western N. Y. Council

BUFFALO — Joseph Davis of Joseph Davis, Inc., was elected president of the Air Condtioning Council of Western New York at a meeting in the University Club here.

Other officers elected were Frederick Kendall, Jr., Humboldt Sales Corp., vice president; Albert E. Stratton, Coleman-Stratton Co., treasurer; and Walter P. Davis, Buffalo, Niagara & Eastern Power Corp., executive secretary.

Chosen for the board of directors were Harold C. Day, American Radiator Co.; Dewitt L. King, Niagara Blower Co.; Andrew G. MacDiarmid, Spencer Air Conditioning Co.; Sherman W. Strouse, Trane Co.; George A. Wright, Chauncey J. Hamlin, Jr., Co.; H. D. Rice, New York Fire Insurance Rating Organization, and Joseph Collins, Frontier Engineering Co.

Teaching Salesmen How To Make Survey & Cost Estimate Aids In Selling 'Packaged' Systems

TYLER, Tex.—Success in the sale of "package" air-conditioning equipment by the Petston Co. here has been dependent on providing salesmen with the information necessary to make a survey, quote a specific price, and make a sale on the initial call.

"We realize that air-conditioning units cannot be sold like radio sets and washing machines," explains S. A. Peters, one of the owners of the concern, "but we have taken a lot of the mystery out of the air-conditioning business by providing our salesmen with adequate information."

Each salesman for the Petston Co. has a compilation showing the size of unit necessary for buildings of a certain size and type. Following the specifications of the hypothetical buildings are prices for a complete installation.

Cost of ductwork is included in this price. Duct costs are lumped into two groups, one for systems of 75 feet and under, and the second for systems over 75 feet. While duct costs naturally vary, Mr. Peters has found that quoting a number of installations tends to equalize any differential in price.

Salesmen for the Petston Co. also are equipped to give figures on insulation and weather stripping for the building, as an addition to the air-conditioning cost.

Because of high water costs in the area, the company makes a practice of including a cooling tower in the complete air-conditioning estimate.

Salesmen work on commission, with a specified weekly drawing account against commissions. Commissions are based on the total cost of the job, including ductwork and insulation.

Giant Gorilla Thrives In Air-Conditioned Cage

NEW ORLEANS—The $10,000 air-conditioned cage of Gargantua the Great—giant gorilla which is the pride of the Ringling Bros.-Barnum & Bailey Combined Shows and which is rapidly becoming America's most pampered beast—is credited by John Ringling North, owner of the circus, as having been largely responsible for the big brute's continued good health.

Mr. North, who has had veterinarians keeping careful tab on Gargantua during the beast's 20,000 miles of touring, reports:

"Since Gargantua has been in his air-conditioned home he has not experienced a single illness or the slightest suggestion of a cold. He has gained considerably in weight and height, and his pelt can only be compared to that of a prize silver fox. From all outward signs, we have yet to perceive any alternation in his disposition."

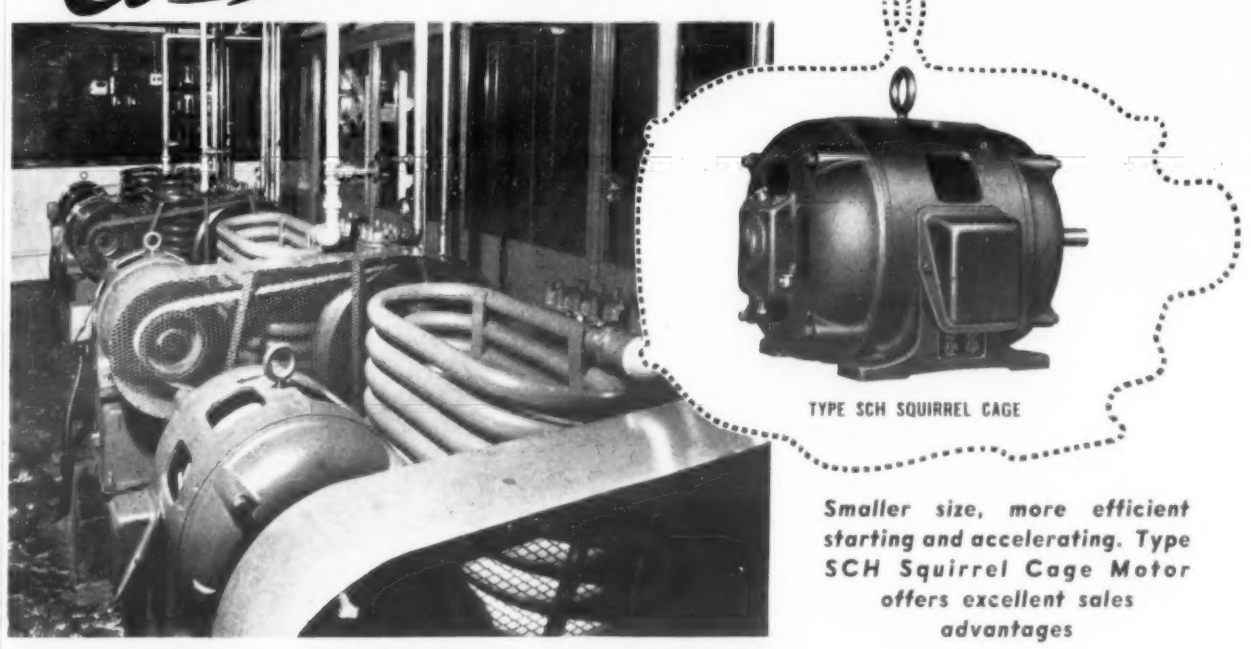
Gargantua, air-conditioned cage and all, sailed from here recently for London, England, aboard the S.S. Maasdan of the Holland-American line—the only passenger on the boat with air-conditioned quarters. Accompanying the beast was Lewis J. Steilen, Carrier Corp. engineer who helped Willis H. Carrier design the conditioning system for the cage, and who studied the effects of air conditioning on the gorilla during the entire circus tour.

Temperature in the cage has been kept at 78° F. with 50% relative humidity. It was found that any change in temperature conditions greater than 1° per hour would result in a shock which might cause Gargantua to contract pneumonia, Mr. North explained.

List of Conditioning Books Made By Canadian Group

OTTAWA, Ontario, Canada—To meet a demand for the growing interest in material about air conditioning, the National Research Council here has prepared "A List of 63 Recent Books on Air Conditioning," with particulars as to their contents, publishers, and prices.

MAKE MORE MONEY SELLING Century MOTORED AIR CONDITIONING



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★ To fully, dependably, and economically meet your customers' air conditioning needs, be sure that a Century Motor drives the Refrigeration Compressor. It means longer service life, minimized maintenance, and efficient performance under the many conditions encountered. Besides the saving on a smaller motor, Type SCH are built with the torque necessary to start the load, accelerate it, and bring it up to speed quickly without possible costly motor breakdowns on hottest days.

Smaller size, more efficient starting and accelerating. Type SCH Squirrel Cage Motor offers excellent sales advantages

• It will pay you to investigate the Type SCH Squirrel Cage Motor — learn its advantages to you and to your customer.

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ONE OF THE LARGEST EXCLUSIVE MOTOR MANUFACTURERS IN THE WORLD

Commercial Refrigeration

How Refrigeration Provides Better Control Of Beverage Manufacture Told By Levine

NEW YORK CITY—Nature of the agents responsible for food and beverage spoilage, and the proper use of refrigeration in the manufacture of carbonated beverages, was discussed by Dr. Max Levine of Iowa State College at the annual meeting last week here of the American Society of Refrigerating Engineers.

Carefully controlled observations and experiments, said Dr. Levine, have demonstrated very conclusively that food deterioration is due primarily to the action of two specific agents, namely; (1) enzymes which are inherent in and are vital components of the food itself and (2) micro-organisms which are continually present in the environment of food products and which are capable of attacking and decomposing them.

ROLE OF ENZYMES

"Enzymes are produced by all living things," the speaker explained. "They constitute the tools which living cells employ for bringing about the changes associated with the maintenance of life, such as digestion and oxidation. These enzymes have the property of catalysts, a catalyst being a substance which accelerates a reaction.

"We might illustrate the conception of a catalyst in this way. If you have an inclined plane and are trying to pull a load along the surface of that incline, the ease with which that load will move is affected primarily by friction between the surface of the load and the surface of the plane.

"If a layer of grease is put between these two surfaces, the load will move more easily and it might be said that the grease catalized, i.e., facilitated, the ease of movement of the load. If the temperature of that grease is raised slightly, though not enough to have it liquefy and flow away, its efficiency as a lubricant is increased, whereas if it is cooled appreciably, it does not function so well. This illustrates the effect of temperature on enzyme changes—the lower the temperature, the slower is their action.

CONTROL OF RIPENING

"You are all familiar with the fact that fruits taste best when they are ripened to a particular point. It is customary to pick fruits before they are completely ripe and store them until ready for consumption. If the ripening process, which is due to the action of enzymes inherently present in the fruits, is permitted to go too far, an over-ripe or rotten product will result.

"The fact that the lower the temperature the more slowly do these enzymes bring about their change is the underlying principle in the utilization of refrigeration for control of the rate of ripening or other changes associated with the activities of enzymes always present in fresh food.

"The problem of micro-organisms and their relation to food preservation is similar to that of the intrinsic enzymes referred to, though in certain aspects quite different. Micro-organisms are living things; they attack foods for the purpose of obtaining energy for their own growth.

"They are, so to speak, in competition with us for the available food supply and it behooves man to employ his greater intelligence and technical skills to protect his food against the ravages of the competing micro-organisms. This may be accomplished by:

WAYS TO PROTECT FOOD

"(1) destroying the micro-organisms and protecting the food against recontamination, as, for example in canning,

"(2) by rendering the food unpalatable to the bacteria, as in drying or smoking, or

"(3) by placing the food in an environment which is unsuitable for microbial growth. It is the latter alternative in which refrigeration plays such an important role.

"Among the micro-organisms with which we are concerned are included the bacteria, yeasts, and molds. The bacteria appear to be spheres, rods, or spiral shaped, and are very small plants. When observed with a high powered microscope, which magnifies them 1000 diameters, they appear to be only $\frac{1}{10}$ to $\frac{1}{25}$ of an inch in length and about half as thick.

"Perhaps their minuteness might be better visualized and appreciated if it were considered that it requires 1,250,000,000 average size bacteria to cover an area of one square inch. Their diminutive size is offset, however, by the tremendous numbers which they may attain because of their extremely rapid and efficient method of multiplication. The cell merely grows to maximum size and splits in two, forming two individual bacteria.

GENERATION TIME

"The period elapsing between splittings is known as the generation time, and at each generation, the bacteria population doubles. Thus, beginning with a single organism, whose generation time is one hour, the progeny of that cell would be 17,000,000 in a single day. There are many factors, among which temperature is one of the most important, which influence the rate of multiplication of bacteria."

Thus, experiments have demonstrated that, in a suitable medium, the progeny of a single cell would be only 4 organisms at 50° F., whereas at about 71° F. its progeny would increase to over 9,000,000 in a single day and at 83° F. the almost unbelievable population of eight hundred and ninety thousand of millions (890,000,000,000) of bacteria would develop.

This is in marked contrast to a mere 212 organisms which would be present even after four days if the food were kept at a temperature of 50° F. Lower temperatures will, of course, retard bacterial development for much longer periods.

CARBONATED BEVERAGES

"In the carbonated beverage industry refrigeration is important not only as a preservative, but it plays a prominent role in good manufacturing practice," said Mr. Levine.

"Every phase of the carbonated beverage industry—production, preservation, and preparation for consumption—is intimately associated with the problem of refrigeration. In fact it is through the development and emphasis on refrigeration that the carbonated beverage industry, as it is known today, has been made possible.

"Carbonated beverages are made by compounding flavored sugar syrup and fruit or other edible acids, with carbonated water. The processes of carbonation, bottle filling, and dispensing are particularly associated with refrigeration.

"The presence of carbon dioxide is the distinguishing ingredient of carbonated beverages and gives to the beverage its characteristic sparkling and refreshing qualities. It is customary to express the concentration of carbonic acid gas in terms of volumes of the gas per unit volume of the beverage. Most beverages are carbonated to contain 3 to 4 volumes of gas."

REFRIGERATION'S ROLE

The role of refrigeration in the beverage industry was discussed by Mr. Levine under the following three headings.

1. Carbonation and bottling
2. Preparation of syrups
3. Serving and dispensing.

In Table 1 are shown the pressures necessary to maintain from 2 to 5 volumes of gas in water at various temperatures.

To produce a desired volume of carbon dioxide gas in a bottled beverage it would, however, be necessary to employ much higher pressures in the carbonation process than is shown in the table, as will be seen from a consideration of the steps in the process of bottling.

These may be considered in the following order: carbonation of the water, addition of syrup to the bottle, filling the bottle with carbonated water and sealing the bottle with a crown.

Table 1—Relation of Temperature And Pressure To Carbonation

Carbonation Temp., °F.	2 Vols.	3 Vols.	4 Vols.	5 Vols.
	Pressure Required			
35	4	13	22	31
40	6	16	26	36
45	8	19	31	42
50	10	23	35	47
55	12	26	40	53
60	15	30	45	59
65	18	34	50	66
70	20	38	56	73

In view of the fact that the syrup is not carbonated and that in general, the ratio of syrup to carbonated water added is about 1 to 5, it will be necessary to carbonate the water about 20% higher than is to be contained in the final beverage, to compensate for the uncarbonated syrup.

Furthermore, losses of escaping carbon dioxide gas occur in the filling process. The pressures at which water will have to be carbonated to produce a stipulated concentration of carbon dioxide gas, say 4 volumes, would therefore be materially greater than indicated in the table.

To produce any desired carbonation, Mr. Levine explained, the bottler has the alternative of taking the water as it comes from the tap and carbonating it at a sufficiently high pressure or cooling the water to some predetermined point and employing a correspondingly lower pressure.

Thus, in order to have 4 volumes of gas in the water if the temperature is 70° C., it will be necessary to have a pressure of 56 lb. maintained in the bottle, whereas if the temperature has been reduced to 35° F. the same carbonation could be obtained with only 22 lb.

PROBLEMS OF 'CROWNING'

The higher the temperature of the water and consequently the pressure under which carbon dioxide is forced into a beverage, the greater is the tendency for escape of this gas, on release of pressure, and so it becomes necessary to seal (crown) almost instantaneously, after a bottle has been filled, to prevent excessive losses of carbonation.

As the bottle is being filled, air is being displaced by liquid and as the crown must be applied immediately, the air in the neck of the bottle is necessarily trapped. This constitutes a serious defect, for the presence of air stimulates yeast growth and many flavors are gradually oxidized, by combination with the oxygen in the air, to produce undesirable and abnormal tastes.

Furthermore, since air is less soluble than carbon dioxide, air bubbles quickly form when the bottle is opened, and these serve as nuclei around which carbon dioxide may accumulate; the equilibrium between the gases and water within the bottle is disturbed with the result that the carbonated beverage loses considerable of its gas retention properties, so that on pouring into a glass, the beverage quickly becomes flat.

The temperature of water, as it comes from the tap, varies on different days, Mr. Levine pointed out, and even at different hours of the same day, particularly if the water is being obtained from a surface supply such as a lake, reservoir, or stream.

To maintain a constant carbonation in the final product it will be necessary to vary the pressure in conformity with the change in the temperature of the water. This renders operation very difficult and, as adequate temperature control is rarely maintained in small and moderately sized plants, marked variability in carbonation has been observed.

INCREASES BOTTLE STRAIN

Furthermore, the higher pressure necessitated when warm water is employed subjects the bottle to a greater strain and thereby tends to increase the incidence of bottle breakage.

All of these difficulties which have been enumerated for the "high pressure" system of bottle filling, wherein the temperature of the water is not controlled or adjusted, may be markedly reduced by resorting to the practice of cooling the water to some predetermined temperature before carbonation thereby making possible "low pressure" filling.

Taking advantage of the facts that carbon dioxide is much more soluble in cold than in warm water, and that its tendency to leave a beverage is much less at the lower temperatures, it is possible to reduce materially and in some instances eliminate completely the objectionable features referred to in discussing the high pressure method of filling.

LOWER PRESSURES

The lower pressures at which bottles are filled when employing cold carbonated water will of course materially reduce the strain on the bottle and thereby markedly decrease bottle breakage on crowning. In contrast to the high pressure system where crowning has to be carried out almost instantaneously, after the bottle is filled, to avoid excessive losses of gas, with the cold water low-pressure filling process the crowning may be carried out leisurely.

The cold water may be depended upon to retain the desired quantities of carbon doixide gas. In fact, the bottle is permitted to stand open for a few seconds before the crown is applied and during this open period there is an opportunity for displacement of the air in the neck of the bottle by the carbon dioxide leaving the beverage, with the result that the air concentration in the beverage is extremely low.

A beverage prepared in this way is therefore less likely to show off flavors due to oxidation merely because the amount or oxygen present is greatly reduced. The carbon dioxide will be retained by the bev-

(Concluded on Page 9, Column 1)

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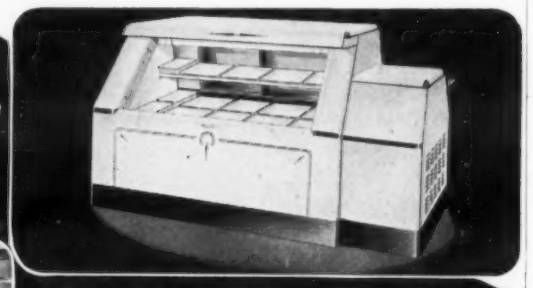

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(Concluded from Page 8, Column 5)

erage much more tenaciously, because the disturbance of equilibrium (previously referred to as due to air leaving a carbonated beverage) will not take place since the amount of air present is so small as to be practically negligible.

CONSTANT PRESSURE

Furthermore, by cooling the water to a predetermined temperature the carbonation pressure may be maintained constant in contrast to the necessity for continually changing the pressure to compensate for changes in water temperature, when employing the "high pressure" system. Greater uniformity of carbonation of the final product is therefore obtained.

The tremendous importance of precooling water before carbonation as an aid to producing better carbonated beverages which will retain carbonation more tenaciously and which will have less tendency to deterioration caused by yeast growth or oxidative changes, is evident, stated the speaker.

PRECAUTIONS TO OBSERVE

"As to the methods of cooling it is desired here merely to point out certain precautions which must be observed," Mr. Levine continued. "If surface coolers are employed they should be very carefully protected against dust contamination. It should be borne in mind that the dust in the beverage plant will at times contain yeasts and any tendency for dust to get into the cooled water would be seriously detrimental.

"Open surface coolers should never be used and even the so-called closed surface coolers are really only partially protected against dust because air currents are necessarily produced around the cooling surfaces. When surface coolers are employed, it would be ideal to have the cooling unit installed in a small air-conditioned chamber.

"The tank-type coolers are not exposed to the danger of dust contamination to the same degree as the surface types, but they are not entirely free from accumulations of vegetation associated with water and it is, therefore, urgent to have them so constructed that they may be cleaned easily. In general, as they are at present constructed, it is difficult to maintain them scrupulously clean.

CLOSED SYSTEMS

"Completely closed systems such as the shell and tube type are also employed in the beverage industry. Equipment, recently brought on the market, which incorporates the cooling with the carbonating unit and the whole quite thoroughly protected against dust contamination, constitutes a promising development in water-cooling for the carbonated beverage industry.

"Although the low pressure system of bottle filling has many advantages, there are certain difficulties and disadvantages of this system which must also be considered. It was pointed out that in the actual filling operation a layer of syrup is first placed in the bottle and then cold carbonated water added.

"The syrup is generally at room temperature so that when the cold water strikes the warm syrup and mixes with it, the higher temperature of the mixture may induce a rapid evolution of carbon dioxide gas producing the phenomenon known as 'foaming' with the result that some of the beverage may run out of the bottle before it is crowned.

"There are many other causes of foaming, but it is desired at this time to call attention merely to foaming due to a difference in temperature between the carbonated water and the syrup. One obvious remedy is to cool the syrup as well as the water. There are, of course, certain difficulties involved, but refrigerating engineers may well apply considerable thought to syrup cooling—a problem which has been sorely neglected.

SYRUP COOLING

"The importance of developing syrup cooling equipment is not restricted to the problem of eliminating foaming; it is really fundamental to truly efficient plant operation and control and elimination of beverage spoilage.

"All investigations on the causes of spoilage of carbonated beverages have demonstrated that by far the most important cause is the presence of yeast in the syrup. In fact 85 to 90% of all cases of spoilage have been traced to this source. The scientific name of yeasts, **Saccharomyces**, means sugar plants, and it is therefore not surprising to find yeast in sugars.

"To eliminate this serious cause of spoilage, it has been repeatedly recommended that the 'hot process' of syrup making be employed.

'HOT PROCESS'

"By the 'hot process' is meant bringing the syrup to a boil in contrast to the so-called 'cold process,' which consists of merely mixing sugar and water at ordinary temperature to make a syrup. Up to the present time no other method than boiling has been found which will effectively, dependably, and economically remove yeast.

"However, very few bottlers, in spite of repeated urgings, have seen fit to adopt the hot process. This reticence to change is not due merely to inertia on the part of the bottler. The fundamental cause is a lack of a suitable, reasonably economical, efficient, and compact cooling system.

"It has already been pointed out that the syrup should preferably be cooled and most certainly if it is heated for the purpose of sterilization, it will have to be cooled before it can be placed in the bottle.

"The present methods of cooling heated syrups are generally cumbersome, inefficient, and frequently expose the syrup to recontamination, thereby undoing the very purpose for which it had been heated.

COMPLICATED PROBLEM

"Less than 5% of the bottlers today utilize the advantages of the hot process syrup making. A great many more would go over to this system, if proper and economical cooling equipment were made available to them.

"The problem of syrup cooling is more complicated than water cooling because of its higher viscosity, concentration of sugar, and the fact that it must be cooled from a temperature of around 200° F. down to 50° F.

"A combined system whereby waste waters in closed conduits might be used to cool the syrup partially and final cooling be brought about by a mechanical refrigeration unit, offers a new field and real opportunity for application of the principles of refrigeration engineering to the beverage industry.

SERVING HABITS

"Not only is it important to control temperature by refrigeration in the process of manufacturing carbonated beverages, but serving the beverage is also associated with refrigeration. Our American practice of consuming refrigerated beverages distinguishes us, with respect to beverage habits, from most other peoples.

"Carbonated beverages must be served cold, for if not adequately cooled the carbon dioxide gas will escape very rapidly as the beverage is being transferred from a bottle into a glass, with the result that a very undesirable flat taste will quickly develop.

"Suitable refrigeration units which will automatically cool bottled beverages to a predetermined temperature are sorely needed. Several such units which combine refrigeration with automatic dispensing are now coming on the market. The possible outlets for small refrigeration units for dispensing carbonated beverages are tremendous."

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Pacific Coast Jobbers Who Will Meet Next In Chicago

(Left) Some of the principals in the Pacific Coast Jobbers Association sit down for a conference. Seated, left to right, are J. E. Rauch, California Refrigerator Co., San Francisco; A. F. Tudury, Refrigeration & Power Specialties Co., San Francisco; Frank Gillett, Frank Gillett Co., Los Angeles; Clarence F. "Sandy" Pratt, California Refrigerator Co.; P. H. Askew, Refrigeration Supplies Distributors, Los Angeles. Standing are H. W. Edwards, Refrigeration & Power Specialties Co.; R. L. Hinshaw, Hinshaw Supply Co., Sacramento; and Byron Watters, Pacific Metals Co., Ltd., San Francisco.

(Right) Frank Gillett makes the keynote address as President Askew looks on.

100 Attend First Meeting of West Coast Jobbers & Manufacturers' Representatives; Plan More Meetings

SAN FRANCISCO—Members of the Pacific Coast Refrigeration Jobbers Association and west coast representatives of manufacturers of refrigeration and air-conditioning parts and supplies, numbering almost 100, met in the Whitcomb hotel Dec. 10 and 11 to cement friendships and discuss mutual problems.

Business sessions were held each morning, with the afternoon and evening open to permit jobbers and manufacturers' representatives to become better acquainted and to go over individual business affairs.

First regional meeting ever held on the Pacific Coast between factors in the refrigeration parts and supplies industry, the idea of a combined business-social session worked out so well, it is said, that West Coast jobbers are laying plans for several such gatherings during 1939.

Next meeting of the Pacific Coast Jobbers Association will be held in Chicago during the All-Industry Refrigeration & Air Conditioning Exhibition, Jan. 16 to 19, it was decided. Another meeting on the Pacific Coast is planned for some time during March, 1939.

Peter H. Askew of Refrigeration Supplies Distributors, Los Angeles, is president of the regional jobbers association; R. L. Hinshaw of Hinshaw Supply Co., Sacramento, Calif., and Harold Stearns of Refrigeration Supply, Inc., Seattle, are vice presidents; Clarence F. (Sandy) Pratt of California Refrigerator Co., San Francisco, is secretary; and B. E. Watters of Pacific Metals Co., Ltd., San Francisco, is treasurer.

Representatives of jobbers and parts manufacturers present at the meeting included:

American Brass Co.—C. R. Epley, San Francisco.

Automatic Products Co.—DeWitt Clark, Los Angeles.

Wyatt R. Brown Co., San Francisco—Wyatt R. Brown.

California Refrigerator Co., San Francisco—Clarence F. (Sandy) Pratt, Jess E. Rauch, Lem V. Branson, Clif Swezy.

Chase Brass & Copper Co.—Charles J. McWhinnie, San Francisco.

Van D. Clothier, manufacturers' agent, Los Angeles.

Day & Night Water Heater Co.—R. O. White, Los Angeles.

Dayton Rubber Mfg. Co.—Warren C. Webb, Los Angeles.

Detroit Lubricator Co.—E. J. O'Connell, Los Angeles.

Frank W. Gillett Co., Los Angeles—Frank W. Gillett.

Hinshaw Refrigeration Supplies, Sacramento—Robert L. Hinshaw.

Kerotest Mfg. Co.—A. W. V. Johnson, San Francisco.

Pacific Factors, San Francisco—Merle G. Haynes.

Pacific Metals, San Francisco—Walter Schroder and Byron Watters.

Pacific Scientific Co., San Francisco—D. Hanson Grubb.

Peerless of America, Inc.—A. W. Witt, Los Angeles.

Pittsberg Chemical Co.—Alfred M. Esberg, San Francisco.

Refrigeration Engineering Co., Los Angeles—Hy Jarvis.

Refrigeration & Power Specialties Co. San Francisco—Art Tudury, Hunter McLaughlin, N. W. Edwards.

Refrigeration Service, Inc., Los Angeles—Lawrence Roth.

Refrigeration Supplies Distributors, Los Angeles—Peter H. Askew.

Frank G. Slagel Co., Manufacturers' representatives, Los Angeles—Frank G. Slagel, Miss Irene Anderson.

Superior Valve & Fittings Co.—Kurt W. Rose, Los Angeles.

Norman S. Wright Co., manufacturers' representatives, San Francisco—Norman S. Wright, Sr., Norman S. Wright, Jr., E. D. Law.

United Wire & Supply Corp.—E. W. Briedenbach, San Francisco.

Virginia Smelting Co.—Nelson W. Woodall, San Francisco.

Wagner Electric Corp.—Ernest L. Oaks, San Francisco.

Wolverine Tube Co.—Nelson W. Woodall, San Francisco.

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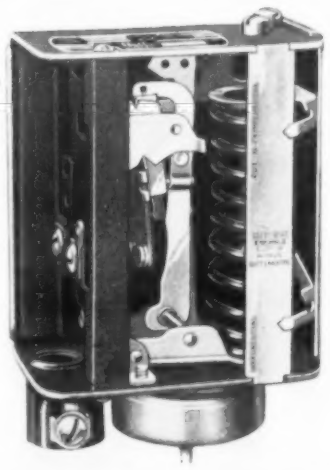

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Commercial Service

Operation of One-Boiler 'Thermo-Syphon' Soda Fountain System Described

The following information comprises the first part of a section on the service of the "one-boiler" soda fountain, which section is a part of the series of articles on the servicing of soda fountains, ice cream cabinets, and counter-type ice cream freezers written by Mr. Black and Mr. Seitz and appearing regularly in the weekly issues of AIR CONDITIONING & REFRIGERATION NEWS.

This week's article describes the design of the "one-boiler" system and discusses the method of refrigeration used. Next article will go into the service problems in this type of system.

By Arch Black and Dean C. Seitz

History

It has been pointed out that the original mechanically refrigerated soda fountains incorporated the same boilers which were used in early ice cream cabinet construction.

At the same time that some manufacturers adopted the two-boiler fountain, other manuacturers felt that a one-boiler fountain system could be developed for soda fountain use. Between 1924 and 1926 many soda fountains using only one boiler were placed on the market. Some of these are still in operation. For the service engineer to have his information complete on soda fountain work, it is necessary to understand not only the two-boiler fountain, but also the one-boiler fountain.

Even today many fountainettes which incorporate the functions of a soda fountain are refrigerated by means of one boiler. The principles of refrigeration used in these fountainettes are exactly the same as those used in the first one-boiler soda fountain.

Principle of Thermo-Syphon Circulation

Whenever a one-boiler soda fountain or a one-boiler fountainette is discussed, the word "thermo-syphon" is used. Thermo-syphon circulation is a complicated word to describe the fact that cold brine sinks and warm brine rises.

Cold air falls and warm air rises. This same principle is true of liquids. A column of cold brine, 1 foot high and 1 square inch in cross section, weighs more than a column of warm brine of the same height and cross section.

If we would connect these two columns of brine, at both top and bottom by means of tubes, a circulation would be established. The cold brine in the one tube would fall and push the warm brine in the other column upward. If one column could be continuously cooled and the other column continuously heated, a perpetual circulation would be established. This circulation is known as thermo-syphon circulation.

This principle is illustrated by Fig. 1. In this figure are shown two tanks, "A" and "B". Tank "A" is insulated, and refrigerated by means of a boiler. Tank "B" is neither insulated nor refrigerated.

If both of these tanks are connected by means of pipes "C" and "D," and then filled with brine so that both tanks and connecting pipes are full, the combination will form a thermo-syphon circuit.

Since the brine in tank "A" is refrigerated by means of the boiler, this brine will be colder than the brine in tank "B," since tank "B" is neither insulated nor refrigerated. Since the brine in tank "A" has a greater density than the brine in tank "B," the pressure on the bottom of tank "A" will be greater than the pressure on the bottom of tank "B."

As a result brine will flow from tank "A" into tank "B," as indicated by the arrows, in an attempt to equalize the pressures on the bottom of the two tanks. The warm brine which flows from tank "B" into tank "A" through the top connecting pipe "D" is cooled in tank "A" by means of the boiler. This cooled brine falls to the bottom in tank "A," again passing through connecting pipe "C" into tank "B." In tank "B" the brine warms up and the entire process repeats.

As is apparent from the description of Fig. 1, it is merely necessary to have two columns of brine connected at both top and bottom, with one being kept continually colder than the other, to establish thermo-syphon circulation.

Application To Soda Fountains

Fig. 2 is a diagrammatic sketch illustrating how the thermo-syphon principle may be applied to the refrigeration of a one-boiler soda fountain. On one side of the creamer unit is installed a conventional full depth brine tank, containing the boiler. On the opposite end of the creamer unit is the water bath compartment. Between the ice cream brine tank and the water bath compartment is the conventional bottle storage compartment.

Instead of installing a second boiler in the water bath compartment, a thin narrow tank, usually one-half to 1 inch in thickness, is placed close to the partition between the water bath and bottle storage compartment. This tank is indicated in Fig. 2 by the term "thermo-syphon tank." A pipe or tube usually ¾ to 1¼ inches in diameter connects the top of the brine tank with the top of the thermo-syphon tank. A similar tube likewise connects the bottom of the brine tank with the bottom of the thermo-syphon tank.

With the water bath compartment filled to its overflow with tap water, an ice formation will form on the thermo-syphon tank due to the circulation of brine in the system caused by the difference in temperature between the brine in the brine tank and the brine in the thermo-syphon tank.

To control the amount of ice formation a manual valve is placed in the top connecting line (Fig. 2). Since the amount of ice is dependent on the temperature of the brine in the thermo-syphon tank, the speed of circulation and therefore the temperature of the brine in the thermo-syphon tank may be controlled by opening or closing this manual flow control valve.

The thermo-syphon tank may be merely a loop of tubing or pipe installed in the water bath compartment. On the majority of fountainettes, this method of cooling the water bath is used.

Fig. 3 is a sectional view of a soda fountain using two thermo-syphon circuits and only one boiler. The boiler is installed in the center of the brine tank. On the right hand side is the water bath compartment. In this compartment can be seen the small thermo-syphon tank with the pipes at top and bottom connecting the brine tank with the thermo-syphon tank. At the top rear of the thermo-syphon tank can be seen the manually operated flow control valve. This right hand thermo-syphon circuit refrigerates the water bath, producing the ice formation.

On the left side of the creamer unit is located the bottle storage compartment, a portion of its refrigeration is obtained by heat leakage through the insulated wall separating the brine tank and the bottle storage compartment. However, a pipe line will be noticed against the rear wall of the bottle storage compartment.

This pipe line forms a second thermo-syphon circuit. The pipe leaves the brine tank on the bottom, extends across the bottom of the bottle storage compartment, then rises to the top, and again passes back to the brine tank. Since the brine in the vertical portion of the pipe in the bottle storage compartment is always warmer than the brine in the ice cream brine tank, a circulation of brine will be established through the pipe circuit assisting in refrigerating this compartment.

It should be noticed that there is no control valve in the pipe line of the bottle storage compartment for the manufacturers of the fountains use the right amount and size of pipe to give them the circulation needed to produce the proper temperature.

The boiler installed in the brine tank illustrated by Fig. 3 has three valves and three lines leading from it. This was the common practice of several refrigeration manufacturers in the early days.

The bottom valve on the boiler is the usual liquid line valve. The center valve is the usual suction line valve. The third valve, on the top, operates the control line which leads directly from the boiler to the low-pressure control switch at the refrigeration machine.

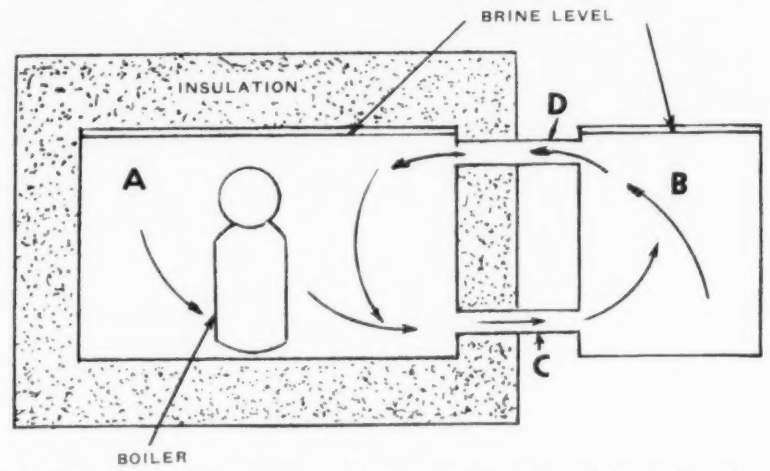
The use of this third valve eliminated the possibility of an oil-trapped suction line affecting the proper operation of the low-pressure control switch. Even today this third line may be used to advantage by service engineers on installations where the suction lines are badly oil trapped. By teeing into the suction line at the suction valve, a separate control line run directly to the low-pressure control switch will eliminate the erratic operation caused by a badly trapped line.

LOW PRESSURE SWITCH SETTING

Since the boiler of a one-boiler creamer unit is always installed in the brine tank, the cut-in and cut-out settings of the low-pressure switch are exactly the same as those used

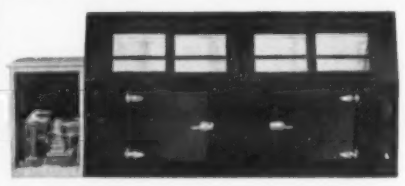
(Concluded on Page 11, Column 1)

Fig. 1—Principle of the One-Boiler System



Since the brine in tank 'A" is refrigerated by means of the boiler, this brine will be colder than the brine in tank "B," since it is neither refrigerated or insulated.. Thus a circulation is created through connecting pipes "C" and "D."

UNITIZED CASES ... SHIPPED READY FOR OPERATION



Rear View of Unitized Case

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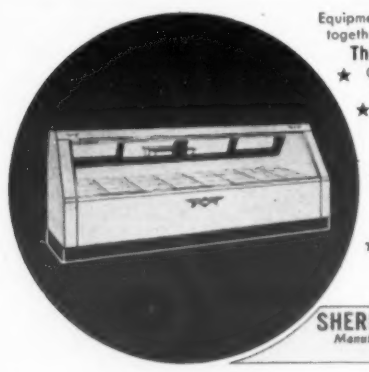

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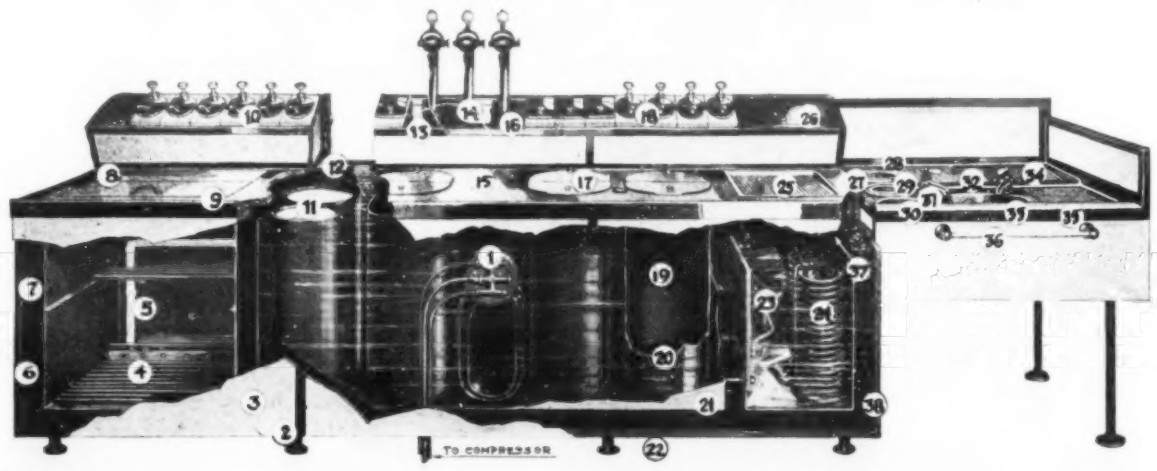
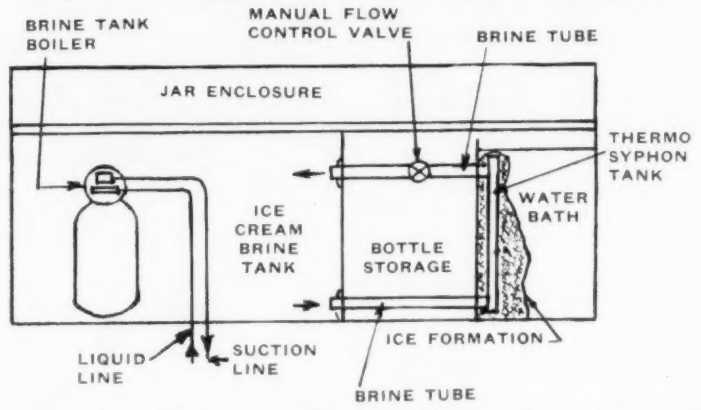
Fig. 3—Interior of One-Boiler 'Thermo-Syphon' Fountain



Key to numbers—1. Boiler, 2. Legs, 3. Facing, 4. Floor rack, 5. Bottle storage thermo-syphon line, 6. Insulation, 7. Insulation, 8. Bottle storage cover, 9. Raised edge, 10. Syrup jars, 11. Ice cream cans, 12. Breaker strip, 13. Jar enclosure, 14. Draft arms, 15. Packer top, 16. Draft station, 17. Ice cream compartment cover, 18. Syrup pump, 19. Ice cream compartment sleeve, 20. Ice cream compartment bottom, 21. Brine tank, 22. Cream unit bottom, 23. Ice formation on thermo-syphon tank, 24. Cooling coils, 25. Water bath compartment cover, 26. Chipped ice container, 27. Workboard joint, 28. Running water disher vat, 29. Tumbler washer, 30. Waste chute, 31. Sink faucets, 32. Sink overflow, 33. Sink, 34. Corrugated drain surface, 35. Workboard capping, 36. Towel rail, 37. Water bath overflow, 38. Fountain cabinet framework.

Fig. 2—Application To Soda Fountain



Illustrating how the thermo-syphon principle may be applied to the refrigeration of a one-boiler soda fountain. Manual valve controls amount of ice formation.

Brine Level Important In 'Syphon' System

(*Concluded from Page 10, Column 5*)

for a similar ice cream cabinet. For a sulphur-dioxide installation the cut-in point should be approximately 4 to 6 inches of vacuum and the cut-out point should be approximately 14 to 16 inches of vacuum, when a full-depth brine tank is used.

On some of the more recent fountainettes, a stub-brine tank is used in which case the cut-out point should be lowered to approximately 17 to 18 inches of vacuum.

Brine Factors In the One-Boiler System

The recommendations of the equipment manufacturer should be followed in specifying the type of brine which should be used with a thermo-syphon circulation. Both calcium chloride brine and alcohol brine are in use.

If calcium chloride brine is used, it is very important to make certain that the calcium chloride is completely dissolved in the water before the brine is placed in the tank. An excess of calcium chloride may clog the circulation pipe lines in the thermo-syphon circuit.

It is important also to strain any brine, whether calcium chloride or alcohol before it is placed in the tank. Any foreign matter such as dirt or small pieces of cork can easily clog the thermo-syphon line.

The level of brine in a thermo-syphon system is very important. The level must always be above the top pipe connecting the brine tank and the thermo-syphon tank. No circulation will take place if the brine level is not high enough to cover or fill all inter-connecting thermo-syphon pipe lines.

Frequently a small petcock will be found on the top of the thermo-syphon pipe line. The purpose of the petcock is to vent the air out of the pipe-line or thermo-syphon tank during the time that the main tank is being filled with brine.

The small petcock should be open during the filling of the tank and then closed as quickly as any brine starts to bubble from the mouth of the petcock.

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Wisconsin 'U' Extends Refrigeration Course

MADISON, Wis. — Home study course in refrigeration prepared by the extension division of the University of Wisconsin's department of mechanical engineering has been revised to include latest engineering developments, and is now available to students in all states, it has been announced.

The course is for erecting and operating engineers, draftsmen, salesmen, and others, and is said to be applicable to the needs of both experienced and inexperienced men.

Purpose in the 24 assignments of the course is to teach the fundamental principles underlying the construction and operation of refrigeration systems, the application of cold storage, insulation of refrigerated space, and the use of ice in cold storage.

This is one of several courses in engineering available through correspondence study, others including heating and ventilating, and steam boilers.

Treatise on SO-2 Prepared By Virginia Smelting Co.

BOSTON—"Sulphur Dioxide as a Refrigerant," a treatise of interest and value to those in the refrigeration engineering and service fields, is being distributed without charge by Virginia Smelting Co.'s office at 131 State St. here.

Written by the company's president, A. H. Eustis, the paper is an authoritative study of sulphur dioxide and its important role in refrigeration, and contains not only information of a technical nature, but also considerable service data.

Research Fellowship Set Up By Gypsum

PITTSBURGH—Establishment by United States Gypsum Co., Chicago, of an industrial fellowship in the Mellon Institute of Industrial Research has been announced by Dr. Edward R. Weidlein, institute director. This fellowship will conduct fundamental research on various products manufactured by the donor company, with the objective of developing new processes and technics which will have broad application in the field of building materials.

This investigational work will augment, rather than replace, U. S. Gypsum's regular research activities, it was announced.

Dr. E. H. Simpson, who has been appointed to the incumbency of the fellowship, has been a member of the Mellon Institute since 1936. He received his professional education at Ohio State University, and later served as assistant professor of ceramics at Rutgers. From 1930 to 1936 he was research engineer for the Battelle Memorial Institute, Columbus, Ohio. Since then he has been on the staff of the multiple fellowship on glass technology in Mellon Institute.

Roy Roden Joins Bettinger Enameling Co.

WALTHAM, Mass. — Roy Roden, formerly assistant enameling superintendent of Landers, Frary & Clark, New Britain, Conn., has accepted a position as enameling superintendent of Bettinger Enameling Corp. here.

Refrigeration Contractor Employs Unusual 'Stunts' For Certain Commercial Jobs

LOUISVILLE, Ky.—"Don't skimp." That's the motto of A. E. Stuckert who heads his own firm, the Lousiville Refrigeration Co., here specializing in commercial refrigeration sales, installation, and service. He says that following the motto has been a major factor in building his business.

The Louisville Refrigeration Co. handles Curtis condensing units and Viking commercial refrigerators. Service is handled on all makes.

Mr. Stuckert's career in refrigeration has been long and varied. Originally in the heating field, Mr. Stuckert switched over to refrigeration nearly 10 years ago, going with Kelvinator's Cleveland branch. He did sales and sales engineering work with Kelvinator, later joined York to do the same sort of work, also acting as an installation supervisor. He was transferred to Louisville and eventually left York to set up his own company.

"When I first started out," relates Mr. Stuckert, "I tried to make use of some second hand equipment but whooie!—the trouble I had taught me my lesson.

"Now when I do a job, I give the customer the best—plus. That's the only way to have satisfied customers, to get new customers and to be able to charge for service calls that may come up after the installation has been in a reasonable length of time.

As an example of what Mr. Stuckert means by this—he prefers air-cooled to water-cooled jobs, and when converting the jobs he uses oversize condensers; for instance, he puts the biggest condenser he can find designed for a ¾-hp. compressor on a ½-hp. unit which he is converting.

"There is a lot of satisfaction in seeing the customer smile when he notes how much such a job cuts his power bill when I have converted a job like that for him," says Mr. Stuckert. "And it's the kind of advertising that money can't buy."

Another example: a general practice is to use a 6-tube coil with ¼-inch fin spacing in display cases. But Mr. Stuckert says there are conditions where such coils aren't adequate, such as where low grade meats are being displayed, in which case he uses a 10-tube coil with ⅜-inch fin spacing to maintain the proper conditions for the preservation of various foodstuffs.

Mr. Stuckert has his own ideas about how certain jobs should be installed and the type of equipment to be used. He is inventive in the way in which he has worked out some of the jobs.

Take a draft beer cooling system, for example. Outside of the conventional water bath (only Mr. Stuckert uses a brine bath) the elements of his system include a constant pressure valve, a thermostat, a piece of 4-inch iron pipe (cut out in the middle and at the bottom), a propeller and shaft, a pulley, and an ⅛-hp electric motor.

What Mr. Stuckert winds up with of course, is an agitated bath in which the beer coils are placed. Temperature maintained in this system is always between 28 and 30° F., Mr. Stuckert claims, and the beer is uniformly cooled.

The thermostat starts the compressor and agitator motors when the temperature gets up to 30° F. The motor is mounted on a board on the outside wall of the booth, and is connected to the shaft by means of the pulley. There is a roller bearing at the top of the shaft, and a brass bushing at the bottom, where the propeller is connected.

Mr. Stuckert claims that this system will provide beer at a low temperature no matter whether one or 100 glasses per hour are dispensed.

More of the 4-inch pipe is used in the installation of the water coils, to prevent the possibility of a freeze-up. Mr. Stuckert has promised a complete description of the system for publication in a future issue of the NEWS.

Another of Mr. Stuckert's own ideas is to use a wood baffle of his own design in coolers. The wood which he uses is ¾-inch poplar, and the design is such that the baffle has an overlapping effect so that there will be no dripping onto the foodstuffs, yet a 2-inch space is left for air passage.

To prevent any fungi growth on the wood, the baffles are pointed with a "fume resisting" Sherwin-Williams flat-white paint.

New Book Affords Data On Flexible Tubing

NEW YORK CITY—"Fact Book of Flexible Metal Hose and Tubing," a new booklet presenting a factual story of these products and their various uses in industry, has been announced by Flexible Metal Hose & Tubing Institute.

Illustrated with photographs of numerous installations, the 19-page book tells the history of flexible metal hose and tubing, defines different types, points out their advantages in specific uses.

Of particular interest to refrigeration and air-conditioning engineers is the flexible metal tube vibration absorber connecting the compressor with the refrigerant lines.

Hendrickson Returns To U.E.I. Position

CHICAGO—R. L. Hendrickson has returned to his former position as chief engineer of Utilities Engineering Institute, following a year's leave of absence during which he was associated with a large refrigerator distributor in Omaha, Neb. as supervisor of commercial sales activities and dealer contacts.

During his work with the Omaha firm, Mr. Hendrickson studied distributor and dealer problems, and designed and installed refrigerated locker systems, milk cooling plants, different types of beverage cooling equipment, and air-conditioning systems for various applications.

Practical information which he gained will be incorporated into U.E.I.'s training program, it is said.

Booklet Shows Uses For South Bend Lathes

SOUTH BEND, Ind.—A free new booklet of photographs illustrating South Bend lathes in use in the shops of several national manufacturers has been published by South Bend Lathe Works.

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